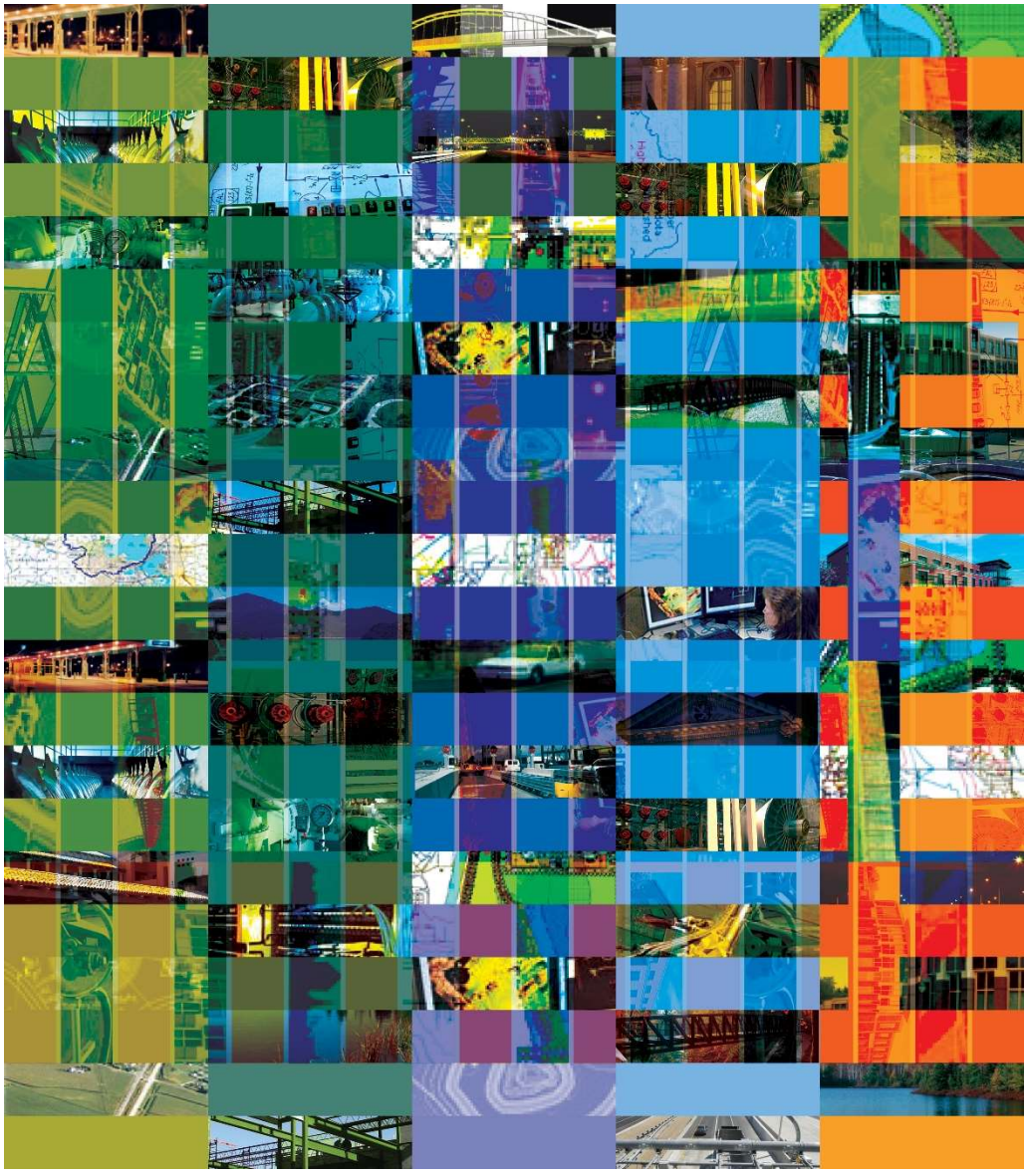
Professional

Engineering

Services

Sheboygan Regional WWTP Transition to UV Disinfection
RFP No. R25-WWTP-06

Potential Plant Expansion Study
RFP No. R25-WWTP-03



Technical Proposal

City of Sheboygan, WI

November 14, 2025

Contact Person:
Ryan M. Yentz, P.E.
Project Manager
Strand Associates, Inc.®
910 West Wingra Drive
Madison, WI 53715
608-251-4843

STRAND ASSOCIATES®

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Excellence in Engineering℠

Strand Associates, Inc.®
910 West Wingra Drive
Madison, WI 53715
(P) 608.251.4843
www.strand.com

November 14, 2025

Mr. Jordan Skiff
Wastewater Superintendent
City of Sheboygan
Department of Public Works, Wastewater Division
333 Lakeshore Drive
Sheboygan, WI 53081

Re: Request for Proposal (RFP) – Sheboygan Regional WWTP Transition to UV Disinfection and Potential Plant Expansion Study

Dear Mr. Skiff:

On behalf of Strand Associates, Inc.®, thank you for the opportunity to submit our proposal for the Sheboygan Regional WWTP Transition to UV Disinfection and Potential Plant Expansion Study projects. We believe we are ideally qualified to deliver these projects and provide exceptional value to the City. The following factors support our selection:

- **Experienced and familiar personnel – delivering confidence**
- **Recent completion of the 2025 WWTP Hydraulic Profile and UV Disinfection Feasibility Study – demonstrating thorough understanding of the project scope**
- **Planned plant expansion study that will answer critical questions – refining scope and goals**
- **Detailed project schedule – providing ample time for City engagement**
- **Relevant experience – showcasing expertise**

The primary contact for this project is listed below left, and the person authorized to make representations for the firm is below right:

Ryan M. Yentz, P.E., Project Manager
Strand Associates, Inc.®
910 West Wingra Drive, Madison, WI 53715
Phone: 608-251-4843
Email: Ryan.Yentz@strand.com

Joseph M. Bunker, Corporate Secretary
Strand Associates, Inc.®
910 West Wingra Drive, Madison, WI 53715
Phone: 608-251-4843
Email: Joe.Bunker@strand.com

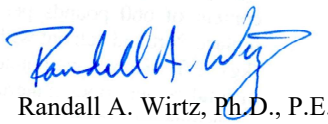
We have reviewed the City's General Insurance Requirements and sample *General Services Agreement* included in the RFPs. We have successfully contracted with the City over the past several years and have a standing technical services agreement, which is active until June 2028. We are confident that we will be able to meet the City's contracting needs.

We are excited to work with the City on these projects. Should there be any questions or if additional information is needed, please call us at 608-251-4843.

Sincerely,

STRAND ASSOCIATES, INC.®

Ryan M. Yentz, P.E.
Project Manager



Randall A. Wirtz, Ph.D., P.E., ENV SP, Senior Associate
Quality Control Engineer

P250.990; P250.991/RMY:bsp

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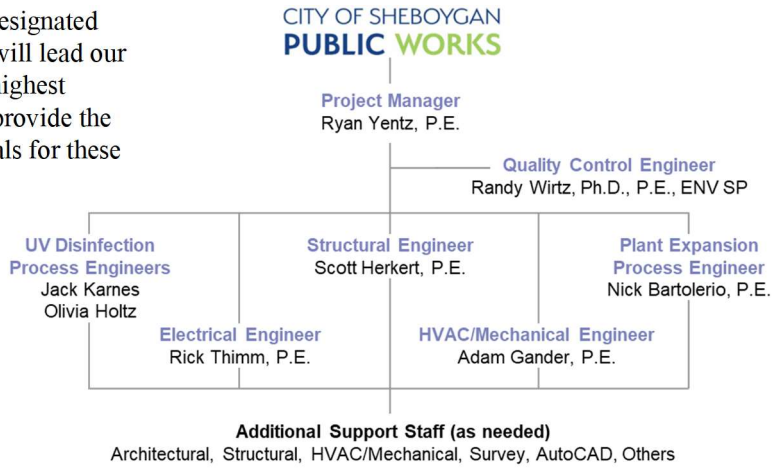
Project Design Team

Experienced and Familiar Personnel Delivers Confidence

This section demonstrates the experience and designated responsibilities of the engineers and staff who will lead our project team. As an organization, we have the highest commitment to our clients and, therefore, will provide the resources necessary to make sure the City's goals for these projects are successfully met.

On the right is an organizational chart of our team followed by a brief description of each team member and their role. Full-length resumes for key team members are included in the *Appendix*.



Project Manager

Ryan M. Yentz, P.E., will serve as the Project Manager, providing oversight and strategic guidance to facilitate success of these projects. He will work closely with the Lead Project Engineer(s) to review deliverables, provide input on key decisions, and maintain alignment with the City's expectations regarding project schedule and budget. Ryan has B.S. and M.S. degrees in Civil/Environmental Engineering from UW-Madison, and his extensive experience with wastewater treatment plant (WWTP) upgrades makes him a valuable resource for these projects. His involvement will provide the City with confidence in the direction and overall quality of the projects.

Ryan's focus has been on managing WWTP projects for a wide variety of communities throughout Wisconsin, including Sheboygan.

Communities that Ryan has been the Lead Project Engineer and/or Project Manager for several wastewater planning and design projects include Sheboygan, Fond du Lac, River Falls, Madison Metropolitan Sewerage District, Waupaca, and Merrill, Wisconsin; and Fox Metro Water Reclamation District, Illinois. Ryan has also been serving the City of Davenport, Iowa, continuously since he started working for our firm in 2016, highlighting his long-term client dedication and expertise from planning through construction. Ryan is currently involved in a facility planning effort for the Madison Metropolitan Sewerage District as the Assistant Project Manager to Randy Wirtz.

Quality Control Engineer

Randall A. Wirtz, Ph.D., P.E., ENV SP, Senior Associate, Director of Practice-Wastewater, brings a keen technical value to all aspects of this project through his more than 30 years of planning and design experience on dozens of similar projects. Randy is the corporate Director of Practice for Wastewater Services at our firm and will provide technical direction for our team. Randy has planned and designed hundreds of WWTPs across the US, including headworks, activated sludge, tertiary filtration, UV disinfection, and biosolids projects. His track record for meeting project budgets and schedules is exceptional, and he will work diligently to set the technical direction for the project early and maintain momentum throughout the project.

Randy is our firmwide wastewater Director of Practice and is involved in nearly all our significant wastewater projects.

Randy is also one of our most experienced wastewater process experts and has managed, planned, designed, or provided Quality Control (QC) review for most of our larger wastewater clients. Randy's relevant experience includes serving as Project Manager or Lead Technical Engineer on numerous similar projects:

- Madison Metropolitan Sewerage District (MSD), WI – Project Manager for the *Liquid Process Facilities Pla*n, including headworks expansion and refurbishment

- Madison MSD, WI – Project Manager for the Liquid Process Phase 1 Design, including hydraulic capacity upgrades
- Madison MSD, WI – Project Manager for the *50-Year Master Plan*
- Waterloo, IA – Project Manager for the *20-Year WWTP Facilities Plan*
- Fond du Lac, WI – Project Manager for Biosolids and Biogas Planning, QC Engineer for the Anaerobic Digestion Facilities and Cogeneration System Design
- Davenport, IA – Project Manager for the Anaerobic Digester Facilities Planning
- Dubuque, IA – Project Manager for the *20-Year Facilities Plan*
- Iowa City, IA – Project Manager for the *Biosolids and Biogas Facilities Plan*

Randy is on the National Water Environment Federation's (WEF) *Residuals and Biosolids Committee*, and the Central States WEA *Resource Recovery and Energy Committee*. He is involved in numerous innovative and significant projects, particularly those with an energy and resource recovery component. Randy is currently involved in projects for the cities of Cedar Falls and Waterloo as well as the Madison, Wisconsin, Metropolitan Sewerage District's (MMSD) *50-MGD Biosolids Facility Plan*. Randy's breadth and depth of experience in plan development, design, operations, process, regulatory compliance, and other areas of wastewater treatment is a true asset to any project.

UV Disinfection Lead Process Engineer

Jack R. Karnes, E.I.T., has a B.S. degree in Civil Engineering from the University of Wisconsin-Madison. He has experience working on many of our WWTP improvement projects ranging from facility planning through design and construction. Jack assisted Ryan Yentz in the UV disinfection planning and hydraulic capacity effort for Sheboygan in 2024 and 2025. As the Lead Process Engineer, Jack's experience with facility planning, hydraulic analysis, and plan development will be a great asset in the completion of the UV Disinfection Design and WWTP Expansion Study projects.

Jack assisted Ryan with the Hydraulic Profile and UV Disinfection Feasibility Study, putting him in a favorable position to refine the design details of these projects.

Jack was the Lead Project Engineer on design projects for Iowa City, Iowa, and Green Bay Metropolitan Sewerage District, Wisconsin, and he assisted in delivering construction administration services on a UV disinfection upgrade for New Glarus, Wisconsin. Jack is currently managing a UV disinfection design project for the community of Cedar Falls, Iowa, after assisting Randy Wirtz with the facility planning effort.

Plant Expansion Process Engineer

Nicholas A. Bartolerio, P.E., has been with our firm for 13 years. He has a B.S. degree in Civil Engineering from the University of Wisconsin-Madison and a M.S. degree in Environmental Engineering from the University of Illinois at Urbana-Champaign. Nick has extensive experience with wastewater treatment processes at laboratory, pilot, and full-scale, and has become a recognized expert in modeling wastewater processes, hydraulics, and biological system dynamics.

Nick is our firm's premier engineer for modeling wastewater treatment processes and hydraulics.

Nick has completed process modeling and capacity evaluations for many facilities, including FMWRD, Greater Peoria Sanitary District, TCBSD, KRMA, Joliet, Moline, Bartlett, Naperville, Crest Hill, and Bensenville, Illinois; Dubuque, Davenport, Ames, and Waterloo, Iowa; Louisville MSD, Ashland, and Regional Water Resource Agency, Kentucky; and Morgantown and Huntington, West Virginia. Nick has been the Lead Process Engineer for many nutrient reduction studies and facilities plans.

Nick specializes in process evaluations and emerging technologies and is regularly involved with developing operations control for equipment and processes. His process modeling experience includes facilities with high industrial contributions, high strength hauled waste, landfill leachate, nutrient deficiencies, and many other complex process challenges.

UV Disinfection Assistant Process Engineer

Olivia N. Holtz holds a B.S. degree in Environmental Engineering from Valparaiso University and will be assisting Ryan and Jack with contract document development for the UV Disinfection Design project. Olivia is one of our bright young engineers that has gained significant experience with design document development, and she will focus on design development and coordination among all our disciplines in her role.

Olivia will assist Ryan and Jack with the UV Disinfection project.

Electrical Engineer

Richard G. Thimm, P.E., is an electrical engineer with 19 years of facility electrical and supervisory control and data acquisition (SCADA) systems preliminary plan development, design, and construction-related experience for water and wastewater facilities, ranging from individual lift stations to complete treatment plants and collection/distribution systems. Rick is well-versed in low- and medium-voltage power distribution, process instrumentation and PLC-based instrumentation and controls, lighting systems, and SCADA communications systems. Rick was the Project Manager for the Sheboygan WWTP Main Electrical Switchgear Replacement project.

Rick has been the Lead or Project Engineer for UV disinfection planning and design projects for the City of Port Washington, Waukesha, Village of Salem Lakes, City of Stevens Point, Ashippun Sanitary District, Village of Fredonia, and New Glarus, Wisconsin, to name a few.

Rick has been the Lead or Project Engineer for numerous preliminary and final design projects, including the Waukesha WWTP Anaerobic Digester Upgrades, Manitowoc WWTF Improvements, Port Washington WWTP Digester Building Improvements, and Kankakee River Metropolitan Agency Digester Complex. Rick has also assisted with major electrical upgrades projects to WWTPs in Sheboygan, Wisconsin; Glen Elyn, Illinois; and Lexington, Kentucky.

Rick will provide a wealth of previous WWTP electrical and controls experience to the design and capacity study efforts.

Structural Engineer

Scott G. Herkert, P.E., Senior Associate, has 34 years of experience with our firm and has provided structural evaluation and design services on a variety of projects, including wastewater and water treatment plants and administration buildings. Scott is also our coatings and concrete repair specialist and has prepared many analyses of the structural integrity and coatings needs for WWTP structures.

Scott has extensive wastewater design and construction experience with renovation of existing facilities and new facilities. His renovation experience includes adding on to existing structures, upgrading existing facilities by replacing various elements or systems of both tank- and building-type structures (grating, railing, walkways, reroofing, doors, windows, lifting devices, etc.), modifying interior spaces, equipment replacement, concrete and masonry repairs, coatings, and many other elements of facility upgrades.

A select listing of wastewater projects on which Scott served as the Structural Engineer includes an Operation and Needs Review for the City of Manitowoc, facilities planning and capital improvements planning for the City of Stoughton, and Operations and Needs Assessment for the Shawano Wolf WWTP, Wisconsin; Nutrient Reduction Modifications for the Ames, Iowa, Water Pollution Control Facility; and Biosolids and Biogas Master Plan for the Fox River Water Reclamation District, Illinois.

Scott will guide the structural design team and provide insight on structural considerations regarding plant expansion.

HVAC/Mechanical Engineer

Adam has unmatched HVAC expertise at WWTPs, including complex digestion/tunnel systems requiring NFPA 820 analyses.

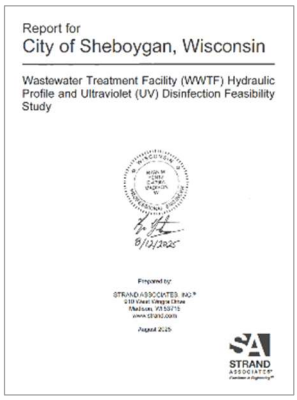
Adam D. Gander, P.E., has 17 years of mechanical engineering experience. Adam has served as the Lead Mechanical Engineer on multiple projects and is well-versed in WWTP projects. He has experience with all phases of project development, including budget development, preliminary design, final design, and construction-related services.

Adam has experience with designing HVAC systems for odorous and hazardous spaces. He is an expert with the different equipment and codes related to these types of spaces, including digester complex and interconnected tunnel systems. Adam is also familiar with natural gas, digester gas, and hot water systems. His attention to detail and familiarity with code requirements associated with HVAC systems make him a valuable member of the team. Adam was involved in several wastewater facilities, including projects for the Rib Mountain Metropolitan Sewerage District, Waukesha WWTP Anaerobic Digester Upgrades, and Manitowoc WWTF Improvements, Wisconsin; the Morgantown Utility Board, West Virginia; the Fox River Water Reclamation District in Elgin, Illinois, and multiple others.

Project Understanding, Approach, and Scope – UV Disinfection

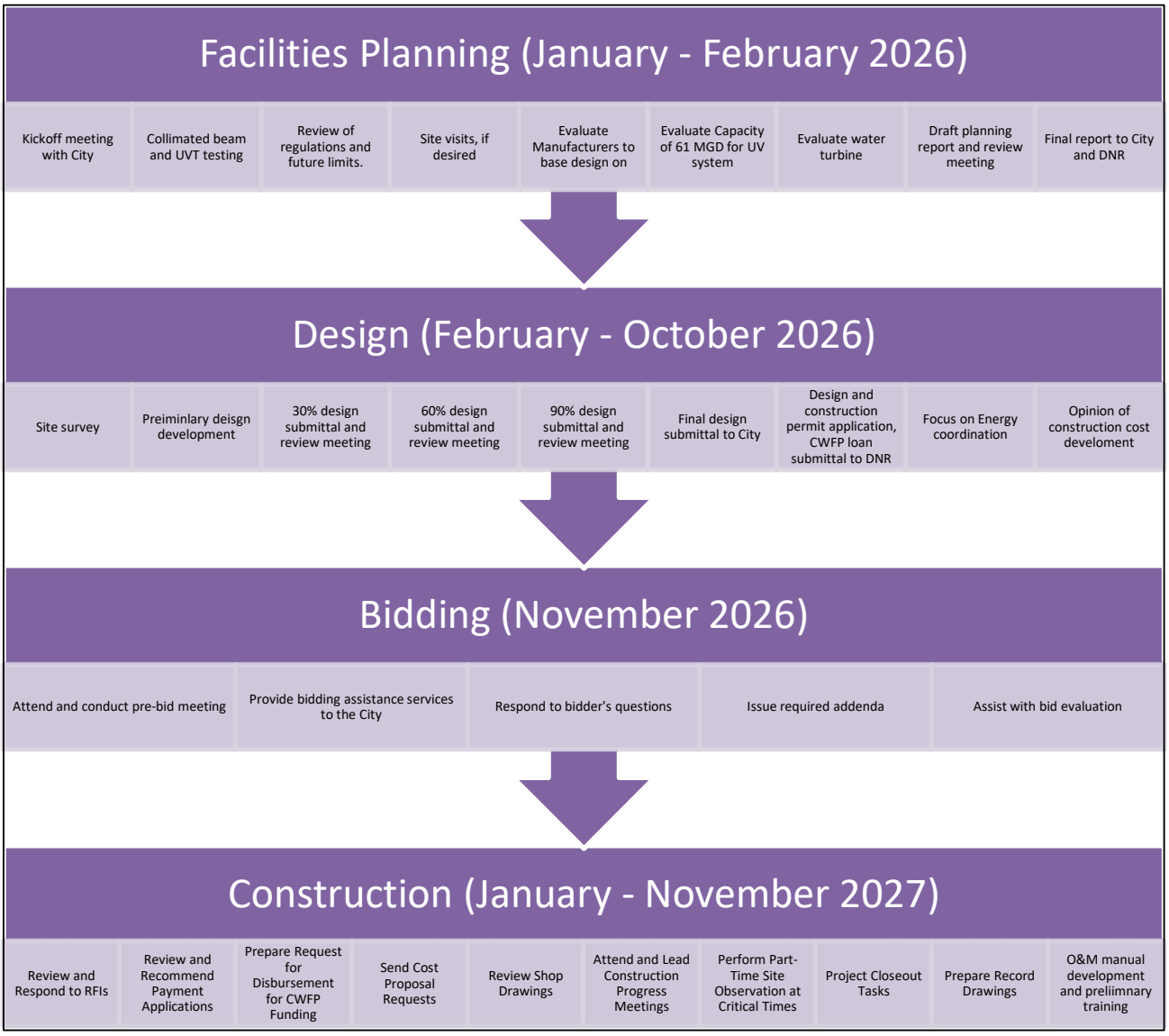
Recent Completion of the 2025 WWTP Hydraulic Profile and UV Disinfection Feasibility Study Demonstrates Thorough Understanding of the Project Scope

The City's RFP requested design, bidding, and construction services related to the proposed ultraviolet (UV) disinfection project at the Wastewater Treatment Plant (WWTP). The schedule in the RFP indicates a facility plan submittal, which is a DNR requirement for review and approval. The facilities plan is also required to obtain project funding through the Clean Water Fund Program (CWFP) low interest loan program. Therefore, we have included a facilities planning phase in our scope of services and have identified the anticipated planning scope, schedule, and fee to allow the City to compare our overall scope and fee with our competitors who may not understand a facilities plan is required. Included in the figure below is a summary of the tasks, meetings, and deliverables anticipated for each of the major project phases. Following this brief introduction, we have included a detailed description of the engineering tasks that we will deliver to the City.


Report for
City of Sheboygan, Wisconsin

Wastewater Treatment Facility (WWTF) Hydraulic Profile and Ultraviolet (UV) Disinfection Feasibility Study

Our 2025 UV Feasibility Study will serve as the starting point for facilities plan submittal to the DNR.



In general, our approach includes significant involvement and interaction with the City and WWTP staff, which is consistent with our approach during the recently completed feasibility study. We believe this is necessary to develop and deliver a successful project. In particular, the WWTP staff need to be involved in the technology selection and facilities layout, since they will be asked to manage, operate, and maintain this new system once constructed. We have included the following meetings, visits, and related interaction with the City to make sure the City is fully integrated within the planning and design process.

- Planning kickoff meeting with the City
- Site visits to three or more plants to observe operating UV systems
- Planning review meeting following submittal of the draft planning report, including review of project budgets
- Design review meetings following 30, 60, and 90 percent design completion

Brief Facilities Planning Phase is Needed to Comply with DNR and Funding Requirements

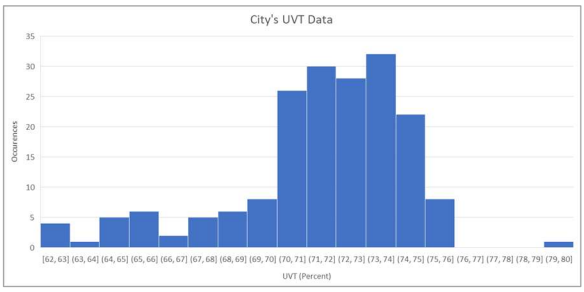
The project will commence with a planning phase, per DNR requirements. The flow and loading data and projections from the previous Draft 2020 Wastewater Treatment Facility Plan (Donohue) will provide the basis for establishing the capacity of the new UV disinfection system. The *2025 WWTF Hydraulic Profile and UV Disinfection Feasibility Study* (Strand) will provide the basis for selecting UV disinfection to meet the DNR's requirements for an abbreviated facilities plan. The planning document will summarize the findings of the 2025 report. This phase is also when additional assessments will be conducted, including continuous UVT testing and collimated beam testing.

Although the RFP did not separate planning services in the scope, we have included a facilities planning phase in our scope of services to comply with DNR requirements.

Specific tasks included in the planning phase are presented and discussed below.

- **Conduct/Lead Kickoff Meeting.** The initial task in this phase is to conduct a kickoff meeting with the City to discuss the project background, scope, schedule, budget, and related issues. We will also conduct an on-site walk through after this meeting to review the existing facilities, including the existing disinfection building and chlorine contact tanks.

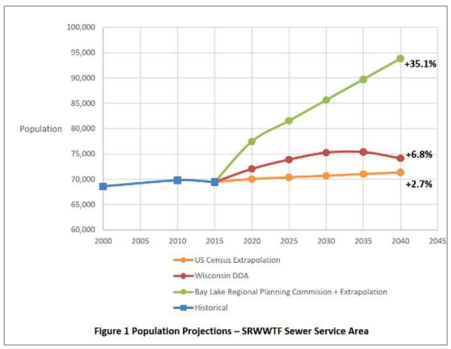
- **Coordinate Additional UVT Testing and Collimated Beam Testing.** The City collected a significant amount of UVT data on secondary effluent from January to August 2024. This data showed fairly consistent results – all of the test results showed UVT values greater than 60 percent transmittance, and a vast majority were higher than 65 percent transmittance. Typical design UVTs are in the range of 55 to 65 percent transmittance, depending on UVT and effluent limits. We recommend additional testing be conducted now to provide as much UVT data as possible to inform the design of the system. The RFP requests that constant UVT monitoring and collimated beam testing be included. We will provide a sampling protocol for collimated beam testing and arrange for the UVT testing equipment to be provided to the City from one of the UV system suppliers. Note that we have not included budget to conduct the constant UVT testing or the collimated beam testing in our proposal since these services are typically offered at no cost.



UVT data from the City's 2024 testing effort

- **Review of Regulations and Future Limits.** The WPDES permit requires year-round disinfection of fecal coliform and E. coli. The current WPDES permit expires in March 2026, and we will communicate with the DNR regarding review regulations and future permit requirements associated with changing to UV disinfection (i.e., removal of residual chlorine limits and monitoring requirements).

- **Coordinate Site Visits.** We believe it is important to observe actual operating systems and to speak to the operators of the systems to discuss maintenance, performance, and overall satisfaction. We have included three site visits to be coordinated over the course of 2 days. The City previously visited the Port Washington facility (Strand design) We recommend visiting plants with different manufacturers. Fond du Lac and Madison Metropolitan Sewerage District are two larger facilities in proximity to Sheboygan that we have designed that would be advantageous. Additionally, Milwaukee Metropolitan Sewerage District is currently pilot testing an alternative manufacturer (Ultra-Aqua), which also could be visited. Additional site options will be discussed to decide on the actual plants to visit.



Population projections will be updated to Year 2050 from those developed in the 2020 Facility Plan.

- **Evaluate Capacity of UV System.** Of particular importance is the design flow capacity. Currently, we are planning for 61.1 MGD based on the 2020 Plan, which evaluated historical data from May 2013 to December 2018. However, data from 2019 to present in addition to population projections through year 2050 will be conducted (2020 Plan projected through year 2040). For example, we understand the City experienced a peak flow of approximately 70 MGD in May 2020, which is significantly higher than the current 61.1 MGD. Additionally, coordination with the *Plant Expansion Study* will be required to provide provisions for UV expansion in the coming years should the WWTF receive rapid development from a wet industry that leads to average influent flows doubling. It should be noted that UV performance may be impacted depending on the type of industry coming in.

- **Evaluate UV System Manufacturers.** The *2025 UV Feasibility Study* evaluated the Trojan Signa UV system, which is a major UV supplier in the United States. Our typical UV designs have included a parallel design package of Trojan and Wedeco. A parallel design package is required to allow both manufacturers to submit a competitive bid due to the differences in geometry, electrical, and HVAC requirements of the two systems. Although this results in additional engineering effort, our experience suggests that these costs are more than recovered by maintaining cost competitiveness on bid day. The previously mentioned Ultra-Aqua UV system has a significant number of installations overseas and could provide a competitive bid, on a singular design, around the Trojan system. This evaluation will determine which manufacturers (including potential others not mentioned) will 'best' suit the City's needs for operation and maintenance while providing a cost-competitive design package.


Facilities planning will evaluate additional manufacturers to determine competitive bidding strategy.

- **Evaluate Water Turbine.** We understand that the City has a close relationship with the Focus on Energy group and has a goal of maintaining low energy usage at the WWTP. Changing from the existing chlorine disinfection system to UV disinfection will add electricity demand and usage at the WWTP. The RFP requests consultants evaluate the potential of implementing a water turbine using the WWTP hydraulics. Our recent hydraulic profile update for the WWTP indicates there is a reasonable amount of head available for an intermediate system. We will evaluate placement of a water turbine in terms of footprint, electricity generation, capital cost, and direct payback.

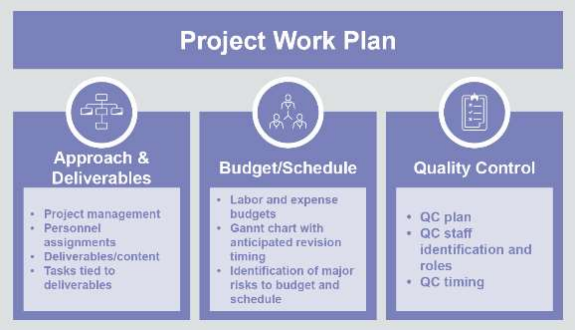
- **Draft Facilities Planning Report and Review Meeting.** A draft facilities plan related to the UV disinfection system will be developed and submitted to the City for review. The report will update our *2025 Feasibility Study* to include flow projections associated with more recent data and projections to year 2050, as well as the regulatory review specific to disinfection. The report will include sections for project background, existing flows, projected flows, regulatory review, alternatives considered, cost evaluations (capital, O&M, replacement, and total present worth),

and comparisons of non-monetary elements of applicable alternatives. The report will include a recommended plan, overall project budget, and related components to comply with the DNR's process requirements as well as the SRF program requirements. Following a brief review period, we will meet with the City to review the document and to discuss any questions on the draft plan.

- **Submit Final Facilities Planning Report to the City and DNR.** Following our review meeting, we will draft and submit the final facilities plan to the City and DNR for their review and approval. We do not expect to delay the design phase while the DNR is reviewing the facilities plan. We are confident that our plan will meet all DNR requirements, and that the plan will be approved in a timely manner and without needing to change anything of substance.

Efficient Design Approach Will Engage City Staff

Following the brief facilities planning phase of the project, we will commence detailed design. During the design phase, we will refine the conceptual/preliminary design from the planning study to a detailed design on paper that will enable competitive bidding of the project. The design will include all necessary engineering and technical disciplines, including process wastewater, mechanical/HVAC, electrical, site/civil, hydraulics, 3D Revit drafting, and surveying. We do not plan to hire a subconsultant for any of the required services for this project since we provide full-service engineering services in-house. Because the project is expected to be located within the existing chlorine contact basins, we do not anticipate the need for geotechnical services. The following tasks and scope are included as described:



Project work plan is critical to meeting overall schedule and avoiding rework.

- **Conduct Site 3D Scan/Survey.** We will conduct a site survey to establish existing elevations and structure locations, as well as to identify utilities. We will also establish the elevation of all affected processes, structures, and hydraulic control elements such as weirs, pipe inverts, flumes, and related control. As part of the survey, we will do a 3D scan to capture the nuances of the chlorine contact tanks and develop drawings in AutoCAD Revit. If acceptable to the City, this survey will likely be conducted during the planning phase, although it is technically part of design. This will save overall project schedule.

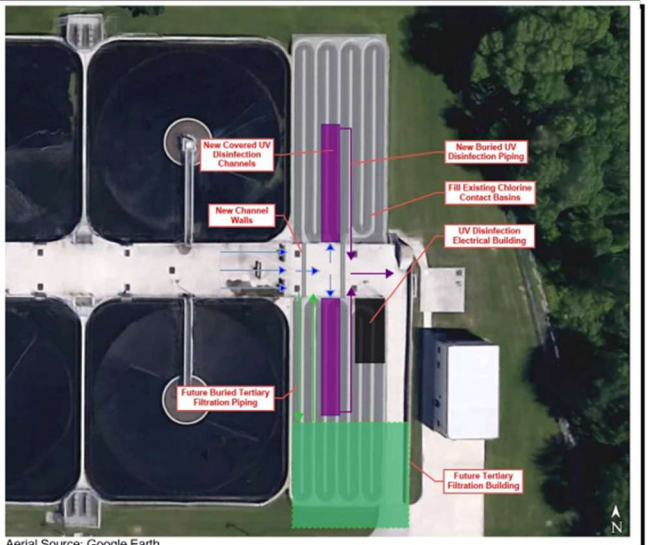
- **Preliminary Design Development.** During this phase, we will continue to develop upon the preliminary layout identified in the *Feasibility Study*. Alternative locations may be reviewed, including where in the tanks to place the UV equipment and potentially locating both UV systems in the same tank to allow more space for a future tertiary filtration building (or other process building). The deliverable will include conceptual drawings and technical details on major building and process materials. This will be submitted to the City for final concurrence prior to beginning the technical specification and design drawings. As needed, we will discuss this information with the City and modify.

Our involvement with the main switchgear replacement at the WWTP will be beneficial during preliminary design.

- **Develop +/-30 Percent Design Drawings.** The drawings will include process schematics, site and plan view layouts, electrical one-line diagrams, process control description, and similar design information for submittal to the City. Following this submittal, we will schedule a 30 percent design review meeting with the City to present and discuss the current design documents.

- **Develop +/-60 Percent Design Documents.** The documents will include more detailed design drawings, plan views, section views, and related drawings. In addition, the first draft of technical specifications will be provided at this time, as well as the first draft of the front-end contract documents. We understand the City's requirement of using its standard front-end contracts and will work with the City to incorporate those documents into the overall bidding documents. Following this submittal, we will schedule a 60 percent design review meeting with the City to present and discuss the current design documents.

- **Develop +/-90 Percent Design Documents.** The documents will include near final design drawings, technical specifications, and front-end contract documents. At this point, the design is very well established and the main focus of review will be on electrical and control details. Following this submittal, we will schedule a 90 percent design review meeting with the City to present and discuss the current design documents.



Aerial Source: Google Earth

Figure 6 Alternative No. 1 UV Disinfection Site Plan

Design phase will continue to develop upon the concept of retrofitting the existing chlorine contact basins to utilize existing flow path. Access of the center alley above the existing tunnel will be maintained for WWTP staff.

- **Develop Final Design Drawings, Technical Specifications, and Contract Documents (bid documents) and Submit to the City and WDNR.** These will be developed based on the City's comments on the 90 percent documents. The final documents will be submitted to the DNR for review and approval.

- **Assist City in the CWFP Loan Application Effort.** This will include completing as many of the forms as possible with the information available to us or by requesting said information from the City. We are experienced in the CWFP process and will assist in whatever capacity is needed.

- **Opinion of Construction Cost Development.** With each design deliverable, we will also include an update to the opinion of construction costs and submit to the City for review. As the design is further defined, contingencies will be reduced. With each submittal, we will also prepare a list of changes that may have impacted the construction cost to allow the City to make decisions as needed to maintain the project budget.

Maintaining an accurate opinion of construction costs by updating it at key design milestones allows City to make educated decisions to meet project budget before bid opening.

Bidding Services Have Positive Impact on Quantity and Quality of Bids

Typically, we are heavily involved during the bidding phase of all of our thousands of projects. Based on our previous experience, we anticipate the following services during the bidding phase:

- Provide details of the project in a draft advertisement to bid. The draft advertisement will be provided in a WORD document for the City's use in publishing the advertisement.

- Attendance at a pre-bid meeting for prospective bidders, if desired.

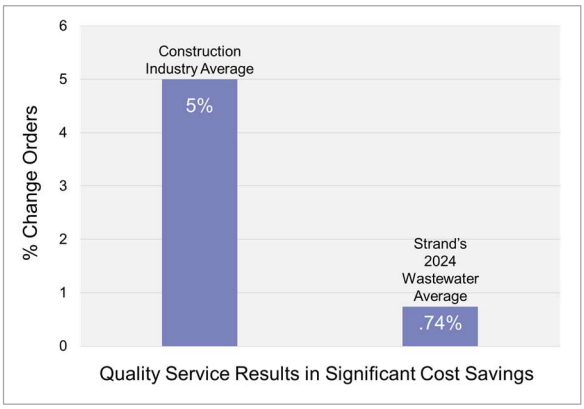
- Respond to bidder's questions in writing. As needed, we will issue addenda to modify the *Bidding Documents* for all prospective bidders.

- Assist the City, if requested, with review of bids, bid tabulations, and other tasks related to awarding of the construction contractor.

Construction-Phase Services Provide Expertise Where Needed to Minimize Cost and Maximize Value

The RFP requests that construction-phase services be limited to minimize expenses. We are proposing the minimum amount of service during construction to maintain our identification as the "Engineer", as defined by the Engineer's Joint Contract Documents Committee (EJCDC). In addition to these services, we are proposing to include part-time observation during critical times of construction to assist in project success consistent with the RFP. We have also identified a few value-added items. The amount of on-site observation and value-added services can be determined following award of this project.

- **Baseline Construction Services**
  - Review and respond to contractor requests for information (RFI) related to the contract documents.
  - Review contractor's payment applications, including schedule of values, progress completed since the previous payment application, and request for disbursement for CWFP funding.
  - Issue cost proposal requests for changes to the project as well as prepare and execute change orders pursuant to the cost proposal requests, if approved by the City. We are very proud of our record of low change orders. The industry average for change orders is 5 percent, however, our average change order percentage on multi-million dollar engineering projects is significantly below this average
  - Review contractor's shop drawing submittals for concurrence with the contract documents.
  - Attend and lead monthly construction progress meetings. We will prepare an agenda before and provide minutes following each meeting.
  - Project closeout tasks, including punch list and substantial and final completion documents.



Change order record demonstrates the value of quality engineering. Based on the expected bid day cost of approximately $6 million, our change order record suggests a savings of more than $250,000 compared to the industry average.

- **Part-Time Observation at Critical Times**. We will provide part time observation during critical times of the project, including concrete pours, equipment deliveries, major installation, and startup. For the purposes of our proposal and based on previous projects with similar goals for the Engineer during construction, we have assumed 200 hours of observation (approximately 25 days). We will discuss with the City an appropriate amount of time to include during contract execution to meet the City's needs, and the City will not be invoiced for hours that are not spent.

- **Preparation of Record Drawings (OPTIONAL SERIVCE).** The contractor will be responsible for marking up the contract documents with changes or deviations made on-site. Our experience is that it is beneficial for the City to have the record drawings drafted into an as-built set. We have not included time in our proposed construction fee to complete this, but can do so if the City desires.

- **O&M Manual Development and Preliminary Training (OPTIONAL SERVICE).** Although not required in the RFP, we believe that development of an operation and maintenance manual and preliminary training in addition to what will be provided by the UV manufacturer associated with the new equipment, is important. Our experience is that this provides WWTP staff with a more holistic view of operations of the equipment, and we can provide this, if the City desires.

Project Understanding and Approach – Plant Expansion

Plant Expansion Study Will Answer Critical Capacity Questions

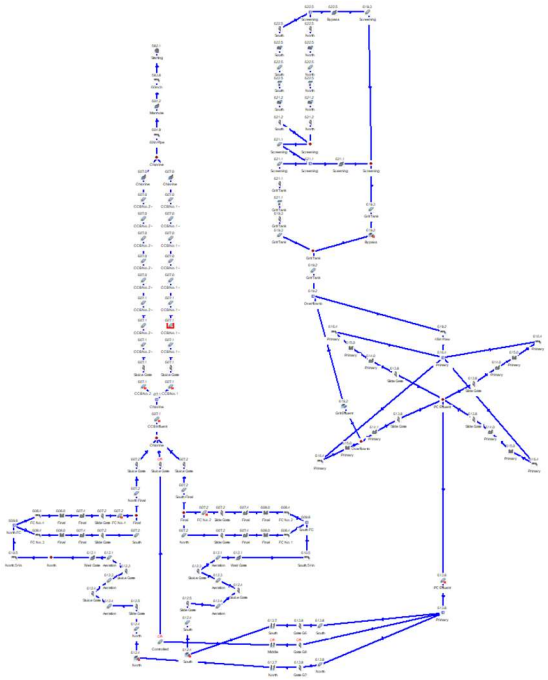
We understand that the City's WWTP currently has adequate capacity to treat wastewater flows and loadings based on current conditions. However, things can change quickly, should a wet industry be interested in developing within the WWTP service area. This plant expansion study will provide the analyses to define the capabilities of existing processes as well as potential opportunities to increase capacity. Our understanding of the City's current WWTP unit processes and desired scope of this project is presented in *Figure 1* on the following page.

Efficient Scope of Services is Tailored to Project Goals and City's Budget

We understand that the City has a budget of $50,000 in its *Capital Improvement Plan* for a plant expansion study. We think this is feasible given our knowledge of the existing WWTP, a collaborative approach, and potential efficiencies associated with also working on the UV Disinfection project proposed at the same time. Our proposed scope of services includes the following:

- **Project Kickoff Meeting.** We will conduct an on-site kickoff meeting with the City and, at a minimum, will discuss project objectives, City expectations, critical success factors, roles and responsibilities, and project schedule.

- **Condition Assessment.** We will bring staff members from our process, electrical, structural, and mechanical/HVAC groups to the site to review the existing facilities and conduct a workshop to discuss specific condition concerns throughout the plant. This information will be used to identify required upgrades to the existing plant facilities regardless of any needed capacity expansion, which is critical to maintaining existing operations and capacity. We anticipate a collaborative workshop with City staff to discuss problem areas of the WWTP and items staff would like to be addressed. The condition assessment and evaluation of existing facilities should be reusable with future full plant facilities planning.

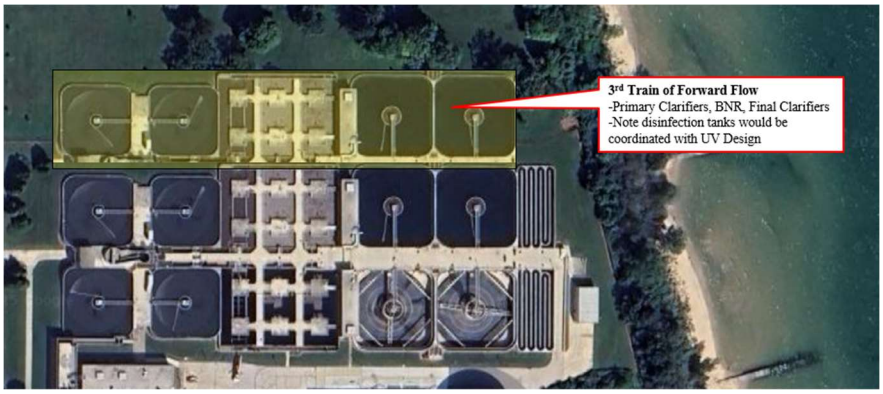


Existing hydraulic model of WWTP provides efficiencies in determining hydraulic capacity of forward flow processes.

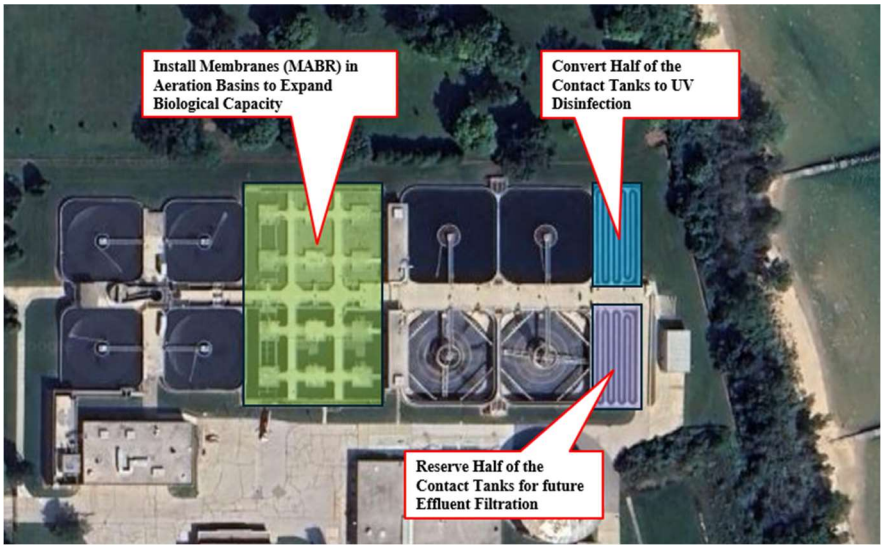
- **Existing WWTP Capacity Analysis**. Evaluation of the existing treatment capacity will assume average flows and loadings will double from current conditions, with peak flows remaining approximately the same as the current design (61.1 MGD). Capacities will be evaluated based on equipment nameplate capacities, shop drawings, design report data, and will be compared to Wisconsin Administrative Code NR 110, and other typical engineering design standards, as appropriate.

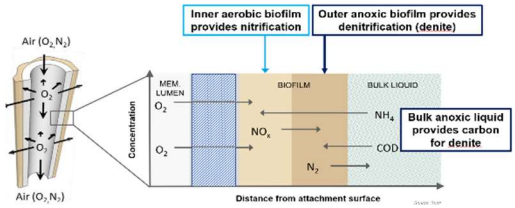
- **High Level Alternatives for Expansion.** Following the capacity analysis, we anticipate a workshop to review the results of this and discuss high-level alternatives for expansion. The RFP indicates that current average flows (11 MGD) are approximately 60 percent of the design average flow (18 MGD), and to assume current flows double in the coming years. This suggests that a total flow of approximately 22 MGD will be used, which is approximately 120 percent of the current design average flow. The most intuitive way to expand the WWTP would be to add a third train to the north of the existing WWTP, potentially using a portion of

Lakeview Park. As discussed in the RFP, we will look at potential Lakeview Park deed restrictions as part of this project to identify any concerns for plant expansion into that area. An additional alternative would be to expand the capacity by implementing an intensification process, such as aerobic granular sludge (AGS), membrane aerated biofilm reactor (MABR), or integrated fixed-film activated sludge (IFAS) into the plant. These intensification processes would increase capacity significantly within the existing tanks/WWTP footprint.

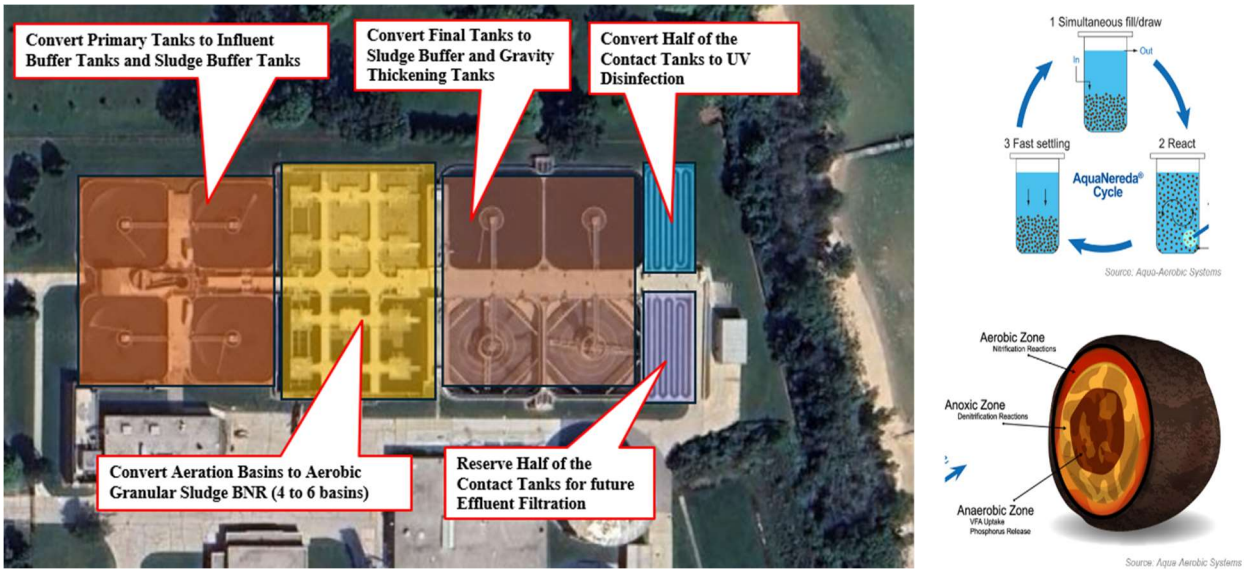


Alternative 1 – Expanding the existing forward flow train to the north. There is potential to not expand all unit processes depending on capacities (i.e., potentially only add BNR tanks).





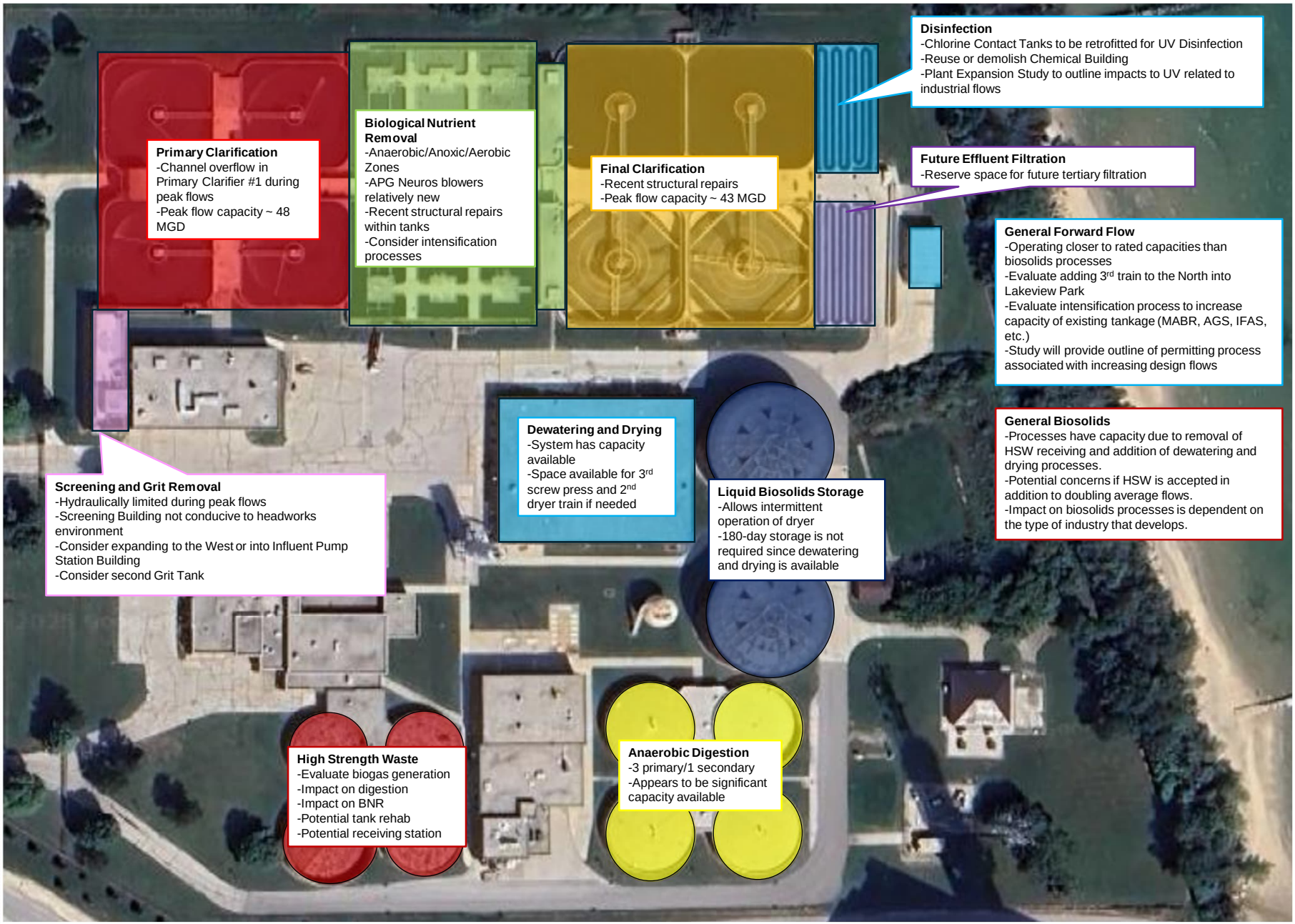
Alternative 2a – Intensification using Membrane Aerated Bioreactors (MABR) would add considerable capacity without expanding the footprint.



Alternative 2b – Intensification using Aerobic Granular Sludge (AGS) could more than doubling the capacity in the same footprint.

Permitting Outline. Should the flows increase above the current design average flows, the WWTP will need to modify its existing WPDES permit. As part of this process, an anti-degradation analysis may be required to demonstrate that water quality of Lake Michigan is not being impacted by increasing the effluent discharge. Depending on the results of the anti-degradation analysis and the WDNR's review of water quality, the WWTP may receive more stringent limits. While completion of an anti-degradation analysis, preliminary permitting services, or review of alternatives to meet more stringent limits are not included in the current scope of services, the *Plant Expansion Study* will discuss a roadmap to inform the City on what additional steps may be required if the design flows increase beyond the current design capacity.

Report Development and Review Meeting. A draft *Plant Expansion Study* will be developed and submitted to the City for review. We will meet with the City to review the document and discuss any questions on the draft plan. Following that meeting, we will address comments and finalize the report.



UNDERSTANDING OF EXISTING WWTP

SHEBOYGAN WWTP POTENTIAL PLANT EXPANSION
CITY OF SHEBOYGAN
SHEBOYGAN COUNTY, WISCONSIN

STRAND ASSOCIATES®

FIGURE 1
P250.990

Project Timeline

Project Schedule Provides Ample Time for City Engagement

We have significant experience with similar projects of this scope and size, and we are confident in our ability to complete these projects on time and budget for the City. As shown on the schedules, we intend to consolidate the kickoff meetings for both projects for greater efficiency. Assuming we are notified of selection by November 21, 2025, we can meet with the City as soon as possible to refine scoping. We anticipate executing contracts in 2025 to be able to kick off in January 2026. A breakdown of the two project schedules is shown in the following tables.

City of Sheboygan WWTP Expansion Study Proposed Schedule									
		November-25	December-25	January-26	February-26	March-26	April-26	May-26	June-26
0.1	Meet with City to discuss project scope	■							
0.2	Submit contract to City for review		■						
0.3	Develop project workplan following execution of contract		■						
1	**Capacity Study Services**								
1.1	Conduct project kickoff meeting								
1.2	Perform WWTP condition assessment								
1.3	Develop WWTP capacity analysis								
1.4	Develop high level alternatives for WWTP expansion								
1.5	Assist City with WPDES permit application								
1.6	Develop report and hold a review meeting with City								
1.7	Finalize report following review with the City								

City of Sheboygan WWTP Transition to UV Disinfection Proposed Schedule																										
		November-25	December-25	January-26	February-26	March-26	April-26	May-26	June-26	July-26	August-26	September-26	October-26	November-26	December-26	January-27	February-27	March-27	April-27	May-27	June-27	July-27	August-27	September-27	October-27	November-27
0.1	Meet with City to discuss project scope																									
0.2	Submit contract to City for review																									
0.3	Develop project workplan following execution of contract																									
1	**Facility Planning Services**																									
1.1	Conduct project kickoff meeting																									
1.2	Coordinate additional UVT testing and collimated beam testing																									
1.3	Review regulations and future limits																									
1.4	Coordinate site visits																									
1.5	Evaluate UV system manufacturers																									
1.6	Evaluate capacity of 61 MGD for UV system																									
1.7	Evaluate water turbine																									
1.8	Draft facilities planning report and coordinate review meeting																									
1.9	Submit final facilities planning report to City and WDNR																									
2	**Design Phase Services**																									
2.1	Conduct site 3D scan and survey																									
2.2	Develop preliminary design																									
2.3	Develop 30 percent design drawings																									
2.4	Submit 30 percent design drawings and conduct review meeting with City																									
2.5	Develop 60 percent design drawings and specifications																									
2.6	Submit 60 percent design documents and conduct review meeting with City																									
2.7	Develop 90 percent design drawings and specifications																									
2.7	Submit 90 percent design documents and conduct review meeting with City																									
2.8	Develop final design drawings, specifications, and contract documents																									
2.9	Submit final contract documents to City and WDNR																									
2.10	Assist City in the CWFP loan application effort																									
2.12	Develop opinion of probable construction cost																									
3	**Bidding Phase Services**																									
3.1	Attend and conduct pre-bid meeting																									
3.2	Provide bidding assistance services to the City																									
3.3	Respond to bidders' questions																									
3.4	Issue required addenda																									
3.5	Assist with bid evaluation																									
4	**Construction Phase Services**																									
4.1	Construction start																									
4.1	Review and respond to RFIs																									
4.2	Review and recommend payment applications																									
4.3	Prepare request for disbursement for CWFP funding																									
4.4	Send cost proposal requests to contractor																									
4.5	Review shop drawings																									
4.6	Attend and lead construction progress meetings																									
4.7	Perform part-time site observation at critical times																									
4.8	Administer project closeout tasks																									
4.9	Prepare record drawings																									
4.10	Develop O&M manual and coordinate training sessions																									
4.11	Substantial Completion/Startup																									
4.12	Final Completion																									

=Facility Planning =Design =Bidding =Construction

Experience and Project Examples

Relevant Experience Showcases Expertise

Wastewater engineering has been a core service provided since our beginnings in the 1940s, and we are one of the top wastewater engineering firms in Wisconsin, the Midwest, and the nation. We are consistently ranked among *Engineering News Record's Top 25 Wastewater Firms.* **Our most current ranking is 17th in the country based on WWTP-related billings for services.** As such, our firm provides nationally recognized wastewater expertise.

The table below presents a small sampling of our wastewater experience for clients across the State of Wisconsin, where most of our wastewater engineers reside and practice. We serve well over hundreds of municipalities across the Midwest with their wastewater engineering needs, and a full list of clients and projects would span many pages and include billions of dollars of WWTP construction over the last 10 years alone. We are a national leader in wastewater engineering, and we will bring that full experience to the City of Sheboygan on these important projects.

Strand Associates, Inc.® Recent Wisconsin Wastewater-Related Planning/UV Projects		
Algoma, WI – WWTP Operations Needs Review (ONR)/Facility Plan	Delafield-Hartland WPCC, WI – Biological Phosphorus Removal Study	Monroe, WI – Review of WWTP Facilities Planning
Ashland, WI – Wastewater Master Planning	Edgar, WI – Wastewater Treatment Planning	Mount Horeb, WI – WWTP Headworks and BNR Planning
Beloit, WI – Wastewater Facilities Planning	Fontana-Walworth WPCC, WI – Facilities Planning	Portage, WI – WWTP Facilities Planning
Black River Falls, WI – Wastewater Facilities Planning	Hustisford, WI – Facilities Plan Amendment Preparation	Rib Mountain Metro. Sewerage District, WI – Facility Planning
Bristol, WI – Wastewater Facilities Planning	Janesville, WI – 2017 Collection System Master Plan	Salem Lakes, WI – Master Plan Update
Brooklyn, WI – WWTF Design and Water Quality Trading Plan	Lake Mills, WI – WWTP Facilities Planning	Stoughton, WI – Long-Range Strategic Planning
Brooklyn, WI – WWTF Compliance Alternative Plan	Madison Metro. Sewerage District, WI – Liquid Processing Facilities Plan	Waukesha, WI – Wastewater Facilities Planning
Chippewa Falls, WI – WWTP Capital Improvement Plan	Marathon, WI – WWTF Facilities Planning	Waupaca, WI – WWTP Facilities Plan
Chippewa Falls, WI – WWTP Solids Planning	Marshfield, WI – WWTP Facilities Plan	Waupun, WI – Phase I and II Facilities Planning
Dane County, WI – Manure Management Facilities Plan	Merrill, WI – WWTP Facilities Plan	Whitewater, WI – WWTP Planning

Included on the following pages are a few project examples that describe comprehensive planning studies and UV disinfection projects for several of our clients. While these projects are much broader and more comprehensive than the current projects this proposal addresses, the goal of these examples is to show our significant engineering experience on complex projects for communities similar to the City of Sheboygan.

Madison Metropolitan Sewerage District – Madison, WI	
Reference	Lisa Coleman, Director of Engineering, 608-222-1201
Role of Proposed Team Members	Randy Wirtz – Project Manager Ryan Yentz – Current Project Engineer / Assistant Project Manager on planning/design projects
Project Relevance	• Long-term capacity evaluation and facilities planning. • Capital project included new UV disinfection design to maximize competitiveness by designing around multiple UV disinfection manufacturers within the existing facility footprint. • Detailed hydraulic modeling analysis of normal and peak flows led to informed decision-making for long-term planning.

We have been involved in nearly all MMSD's master and facilities planning efforts over the past 15+ years, including:

- *2009 50-Year Master Plan (2010-2060)*
- *2014 Energy Roadmap Plan*
- *2016 Liquid Process Facilities Plan*
- *2020 Asset Management Plan*
- *2022 Energy Master Plan*
- *2023 Collection Systems Facilities Plan*
- *2024 Heat and Power Facilities Plan*
- *2025 Biosolids Facilities Plan*

Nine Springs Wastewater Treatment Plant – MMSD.

Randy Wirtz served as our Project Manager for all the plant-related projects as well as the design projects that flowed out of the planning efforts. Ryan is serving as the Assistant Project Manager and Lead Process Engineer for the current *Biosolids Facilities Plan*, which includes planning for all solids management facilities at the plant through the design year of 2050.

As part of the larger facilities planning project, we evaluated replacement alternatives for the existing 100-MGD UV disinfection facility. MMSD has utilized UV disinfection since the 1980s and replaced its original system with a second UV system in the mid-1990s. The second UV system operated successfully, and in 2016, we were selected to conduct alternative evaluations for replacement of the system. During the planning phase, we evaluated UV, chlorination/dechlorination, PAA, ozone, and high-rate disinfection utilizing combined systems to reduce contact time requirements.

Based on monetary and non-monetary comparisons, we recommended replacement of the system with an inclined UV system from Trojan or Wedeco. The Wedeco system would only require minor modification of the existing channels, whereas the Trojan system would require lowering of the channels by approximately 1 foot to accommodate the longer 1,000-watt bulbs. Both UV manufacturers were specified, and design drawings for both were included in the bid documents to allow MMSD to competitively bid both manufacturers. The Trojan system was selected based on bids received, and the UV system completed startup in April 2021 and has operated successfully since.

New Trojan UV Disinfection System – MMSD.

Fond du Lac Water Treatment and Resource Recovery Facility Engineering Services – Fond du Lac, WI	
Reference	Cody Schoepke, Superintendent, 920-322-3662
Role of Proposed Team Members	Ryan Yentz – Current Project Manager for planning, design, construction projects Randy Wirtz – Overall Quality Control / Project Manager for UV disinfection project
Project Relevance	• WWTP planning, including UV disinfection • Peak design flow = 100 MGD • Reuse of existing structure for installation maximized City's budget • Long-term planning efforts examined all processes at the plant

We have provided engineering consulting services to the City of Fond du Lac the last 40+ years. Our initial efforts included plan development, design, and construction-related services for improvements – totaling more than $63 million – to renovate all areas of the plant, including replacing pure oxygen activated sludge with an air activated system, installing ultraviolet (UV) effluent disinfection, adding temperature-phased anaerobic digestion (TPAD) with centrifuge dewatering, and installing cogeneration and co-digestion facilities. We designed the sidestream deammonification process – the first in Wisconsin, the second such facility in the Midwest, and the first deammonification system in the United States – to use the Paques Anammox process (licensed by Ovivo).

The average-daily design flow for the facility is 9.84 MGD, but peak-hourly flows of more than 60 MGD can be handled. The plant is an advanced secondary activated sludge facility with primary clarification, single-stage nitrification, denitrification, separate storm flow (excess flow) clarification, and biological phosphorus removal. Effluent UV disinfection was designed to handle biologically-treated forward flows up to 34 MGD, as well as blended excess flows (primary treatment of wet-weather events) up to approximately 68 MGD. The facilities are designed to allow future expansion of the system to approximately 100 MGD. One of the existing UNOX high purity oxygen aeration basins was converted into a subgrade building to house the new UV equipment.

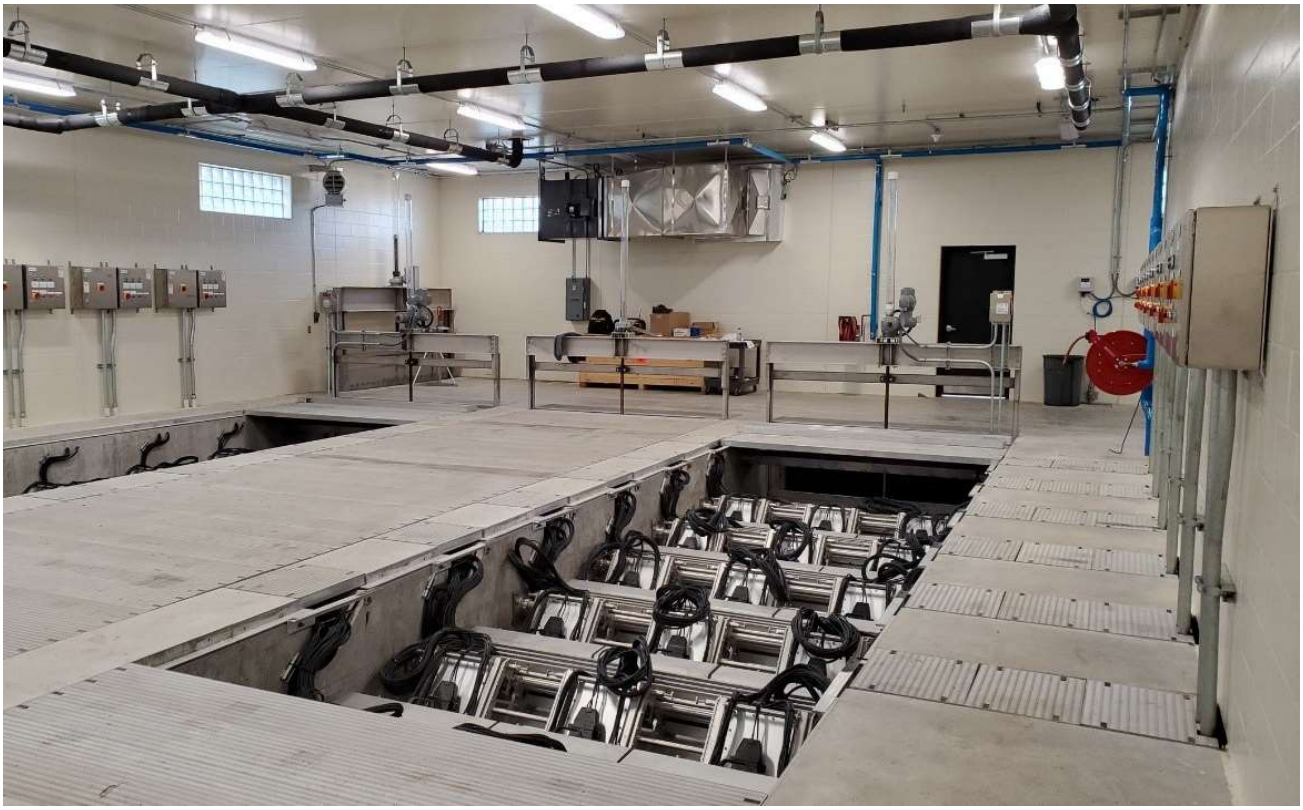
Trojan 4000 UV Disinfection System – Fond du Lac WTRRF.

Davenport Water Pollution Control Plant UV Disinfection Design and Digestion, Biogas, and Struvite Control Facilities Plan – Davenport, IA	
Reference	Brian Schadt, City Engineer, 563-326-7923
Role of Proposed Team Members	Ryan Yentz – Project Manager / Project Engineer since 2016
Project Relevance	• Included UV pilot testing and significant collimated beam testing to properly size the UV system • Peak Design Flow = 55 MGD • Flexible design allowed for parallel bidding of two manufacturers • Excess hydraulic capacity above normal treatment capacity for wet-weather events

We designed a UV disinfection system for the City of Davenport Water Pollution Control Plant (WPCP) to meet new *E. coli* limits. The WPCP currently treats a maximum of 55 MGD through secondary clarification and blends primary clarification effluent flows exceeding 55 MGD up to 75 MGD. We worked closely with the City as they conducted pilot testing of the UV disinfection equipment and assisted the City with permit negotiations relating to the disinfection limit. The UV system is housed in a new building located above the existing 96-inch plant effluent pipe and is designed to disinfect the secondary effluent. Furthermore, the system has a hydraulic capacity of 75 MGD, which will allow blended effluent to be disinfected during wet-weather events.

As part of design, two UV manufacturers, Wedeco and Trojan, were specified and the building was designed to easily accommodate either system, allowing the City to competitively bid the project in May 2020. The project included the installation of a Wedeco UV disinfection system and was substantially complete in December 2021. The UV disinfection system has been in use to meet limits since April 2022.

In addition to the UV disinfection design and CIP, Ryan Yentz has been continuously serving the City of Davenport on WWTP and collection system planning, design, and construction since he started at our firm in 2016. His dedication to the City is a great example of our firm's long-term commitment to our clients' satisfaction and success.



Wedeco UV Disinfection System – Davenport WPCP.

Fox Metropolitan Water Reclamation District (FMWRD) – Oswego, IL	
Reference	Karen Clementi, District Manager, 630-892-4378
Role of Proposed Team Members	Ryan Yentz – Project Engineer Randy Wirtz – Overall Quality Control Nick Bartolerio – Process Modeling and Process Engineer
Project Relevance	• Plant capacity study examines multiple no- or low-cost alternatives to find a suitable solution that best serves the needs of the community • UV disinfection and sodium hypochlorite systems compared on both monetary and non-monetary bases.

The District operates two WWTPs, the South Plant and the North Plant. The current combined annual average flow to the North and South Plants is approximately 35.6 MGD, and the average dry-weather flow is approximately 27.5 MGD.

In 2025, we completed a capacity study examining the existing unit processes at the District's WWTPs. The study examined future flows and loadings to the WWTP, evaluated low or no-cost alternatives to optimize the existing treatment facilities, and assisted FMWRD with long-term planning for future expansions of their South Plant necessary to accommodate the future flows and loadings. An extensive BioWIN model was developed and calibrated based on a year-long historical dataset. Using the calibrated model, the simulated effluent quality of the model matched the measured effluent concentrations during the calibration and validation periods.

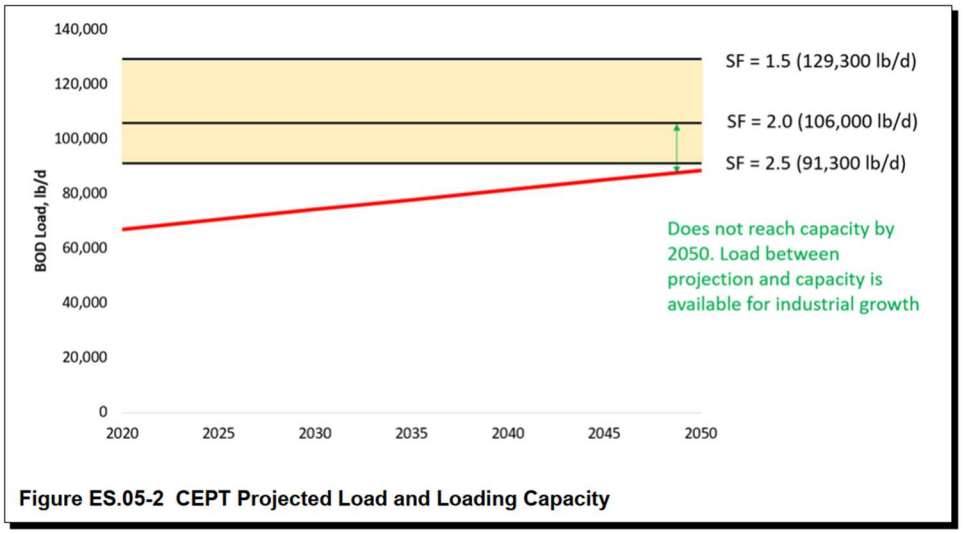


Figure ES.05-2 CEPT Projected Load and Loading Capacity

Illustration of spare plant capacity using CEPT; results from BioWIN – Fox Metropolitan Water Reclamation District.

Following development of the model, we assessed the loading capacity of the WWTPs, finding the North Plant to be operating at 74 to 103 percent capacity and the South Plant to be operating at 70 to 100 percent capacity. After exploring multiple preliminary alternatives for a detailed evaluation of treatment capacity expansion, bioaugmentation and chemically enhanced primary treatment (CEPT) were ultimately shortlisted. CEPT was selected as the chosen alternative, due to the higher additional treatment capacity, struvite mitigation, operational flexibility, and synergy with an ongoing renewable natural gas (RNG) project through generation of additional biogas (greater than a 25 percent increase anticipated). We take great pride in exploring all possible options with our clients, giving them a full picture of monetary and non-monetary considerations to select an alternative that works best for the community. The selected solution will provide a sewer service area of more than 300,000 residents with approximately 20 percent reserve organic loading capacity beyond the projected 2050 influent loads to accommodate industrial growth, new sewer service areas, or other unforeseen growth.

Also in 2025, FMWRD hired us to complete a UV Disinfection feasibility study. The study's scope included oversight of the District's full-scale peracetic acid (PAA) disinfection pilot study and development of alternatives to replace the existing sodium hypochlorite disinfection facilities at the District's North Plant. A UV sampling program was organized to perform collimated beam testing on the WWTP effluent following completion of the PAA pilot. While the pilot showed PAA to be unsuccessful at disinfection at the North Plant, keeping the existing sodium hypochlorite system or implementing UV disinfection were further examined as proposed alternatives. This project is just one of many examples of UV disinfection experience our firm has gained over the years.

River Falls Wastewater Treatment Facility Dewatering and Dryer Addition – River Falls, WI	
Reference	Kevin Westhuis, Utility Director, 715-426-3442
Role of Proposed Team Members	Ryan Yentz – Project Manager Randy Wirtz – Overall Quality Control
Project Relevance	• Activated sludge capacity study and plan for expansion within the existing footprint • Detailed study of WWTP processes flows and loadings • Working with various manufacturers to deliver high-quality design and meet operator needs • Evidence of our project team's management expertise • Plant Expansion Study for potential industry

We have served as the wastewater engineering consultant for the City of River Falls since 2018 when we completed our first evaluation of the WWTF's aeration system. In 2019, we completed a biosolids study. In 2022, we were retained to complete the design of a new dewatering and drying facility for the City.

As staffing changed between the 2019 study and the 2022 design phases, WWTF staff desired to maintain some of the existing solids processing equipment to provide improved operational flexibility. This resulted in the need for a new building rather than retrofitting the existing building, which was accommodated in our design process. The result was an improved construction schedule while providing the operators with more options to manage biosolids at the plant. We pride ourselves on taking operator's preferences into our design projects, and the River Falls example is indicative of our attention to operations and maintenance requirements for all our projects.

Dewatering and drying building structure – River Falls WWTF.

The drying project includes pumping thickened sludge from the DAFT building to the new dewatering and drying building. Screw press and centrifuge dewatering technologies were evaluated in the early phases of design. Ultimately, a screw press was selected, as manufactured by Schwing Bioset, due to the lower capital and operational costs as well as its proximity to River Falls, being located in Somerset, Wisconsin. Thickened sludge samples were sent to Schwing to confirm expected dewaterability, as this is critical to sizing the drying equipment.

Design included the evaluation of three indirect dryer manufacturers (paddle and screw type) due to operator's preference based on the results of the 2019 study. A BCR Environmental screw dryer was preselected for design based on capital cost, space requirements, energy use, and reference checks. Dried product storage included a silo sized for one month of storage at future conditions. Additional storage is planned offsite at the City's composting site for community pickup.

"Strand and Ryan are a pleasure to work with."

– Kevin Westhuis, Utility Director, City of River Falls

Resumes

Project Manager

Ryan M. Yentz, P.E.

Quality Control Engineer

Randall A. Wirtz, Ph.D., P.E., ENV SP, Senior Associate, Director of Practice-Wastewater

UV Disinfection Lead Process Engineer

Jack R. Karnes, E.I.T.

Plant Expansion Process Engineer

Nicholas A. Bartolerio, P.E.

Electrical Engineer

Richard G. Thimm, P.E.

Structural Engineer

Scott G. Herkert, P.E., Senior Associate

HVAC/Mechanical Engineer

Adam D. Gander, P.E.

Ryan M. Yentz, P.E.

AREAS OF EXPERTISE

- Biosolids Drying
- Municipal Wastewater Treatment
- Municipal WWTP Agency Requirements
- Construction Project Management
- Collection System Rehabilitation
- Conveyance System Analysis

PROFESSIONAL EXPERIENCE

Biosolids Drying experience includes Project Management of projects including drying equipment in River Falls, Fond du Lac, New Holstein, Waukesha, and Portage, Wisconsin. Ryan has been the project manager for multiple dryer design and construction projects and has become the firm's expert in biosolids drying.

Municipal Wastewater Treatment experience includes plant hydraulic analysis, process and instrumentation drawing (P&ID) development, and secondary treatment design in Salem Lakes, Wisconsin; biosolids planning evaluations in River Falls, New Holstein, and Fond du Lac, Wisconsin; and plan development and design of aeration improvements in River Falls, Wisconsin.

Sanitary Sewer Collection System Assessment and Rehabilitation experience includes manhole assessment and rehabilitation, sanitary sewer rehabilitation, CIPP lining, and force main rehabilitation analysis. Ryan completed assessment and/or rehabilitation projects in Fond du Lac, Merrill, Wausau, Wisconsin Rapids, Wisconsin; Cedar Rapids, Davenport, Iowa; and Deerfield, Sandwich, Illinois.

Wastewater Conveyance System Analysis experience includes inflow and infiltration (I/I) studies, sanitary sewer evaluation surveys, capacity studies. Served as the Project Engineer for wastewater conveyance system analysis projects in Edgar, Manitowoc, Merrill, Onalaska, Wisconsin; Davenport, Iowa; Sycamore, Illinois.

Construction Project Management experience includes construction management and resident project representative (RPR) services for projects in Fond du Lac, River Falls, Wisconsin; Cedar Rapids, Davenport, Iowa; Deerfield, Illinois.

Municipal Wastewater Treatment Agency Requirements experience includes facilitation of Wisconsin Pollutant Discharge Elimination System (WPDES) permit and variance applications, and Capacity, Management, Operation, and Maintenance (CMOM) program development. Served as the Project Engineer for projects in Lake Mills, Manitowoc, Middleton, Mount Horeb, Stoughton, Wisconsin and Sycamore, Illinois.

Airport Construction Observation experience at the Dane County Regional Airport includes:

- **Low Visibility Improvements** – Installation of Category II Approach Light System, including surface lights within runway and runway intersection. The project also included new runway painting and an emergency catch system for military aircraft.
- **Glycol Management System** – Construction of a new management system for deicing fluid used during winter operations. The system allows the facility to sample, test, and contain used deicing fluid on-site prior to disposal.

PRESENTATIONS

- (2019, October 8-10). *CIPP Lining: Tips, Tricks, and Lessons Learned for the Collection System Owner.* Presented at the 2019 WWOA Annual Conference.
- (2020, October 20-22). *Evaluation of Aerator Replacement vs Installation of Fine Bubble Aeration at an Oxidation Ditch.* Presented at the 2020 WWOA Annual Conference.
- (2020, October 20-22). *Pumping Station and Force Main Rehabilitation vs Replacement Across the Wisconsin River.* Presented at the 2020 WWOA Annual Conference.
- (2021, October 5-7). *Flattening the Curve: A Comprehensive Look at I/I.* Presented at the 2021 WWOA Annual Conference

YEARS OF EXPERIENCE

9

YEARS WITH FIRM

9

EDUCATION

B.S. Civil Engineering – University of Wisconsin-Madison, 2016

M.E. Environmental Engineering – University of Wisconsin-Madison, 2019

REGISTRATION

Professional Engineer in Wisconsin

PACP/MACP/LACP Certified

STRAND ASSOCIATES®

Ryan M. Yentz

- (2022, May 18 and October 6). *Lessons Learned from Biosolids Drying*. Presented at 2022 CSWEA 95th Annual Meeting and 2022 WWOA Annual Conference.
- (2022, October 5). *Why did the Sewer Cross the Road? River? Or Railroad? A Look at Maintaining Infrastructure in Difficult Locations.* Presented at the 2022 WWOA Annual Conference.
- (2023, August 31). River Falls WWTF - *Biosolids Dewatering and Dryer Addition.* Presented at the WWOA West Central Regional Meeting.

PROFESSIONAL AFFILIATIONS

- Central States Water Environment Association
- National Association of Sewer Service Companies
- Water Environmental Federation
- Wisconsin Wastewater Operators Association

Randall A. Wirtz, Ph.D, P.E., ENV SP

Senior Associate/Director of Practice-Wastewater

AREAS OF EXPERTISE

- Biological Treatment
- Solids Management / Stabilization
- Chemical / Physical Treatment
- Nutrient Removal
- Energy Recovery and Efficiency
- Disinfection
- Digester Gas Utilization
- Industrial Waste Treatment
- Odor Control

PROFESSIONAL EXPERIENCE

Municipal Wastewater Treatment experience includes planning and design of biological treatment facilities, odor control facilities, chemical treatment systems, sludge dewatering systems, biosolids stabilization facilities, disinfection facilities, and pumping and conveyance facilities. Recent projects are highlighted below.

- **Waterloo, Iowa** – Facilities Plan, Project Manager and Lead Process Engineer
- **Dubuque, Iowa** – WWTP Facilities Planning, Design, and Construction for $70 million Project (significant industrial loadings), Project Manager and Lead Process Engineer
- **Davenport, Iowa** – Facilities Plan, Project Manager and Lead Process Engineer
- **Ames, Iowa** – Biogas and Cogeneration Facilities Planning, Project Manager
- **Cedar Rapids, Iowa** – WWTP Upgrades (ash handling and anaerobic process heating), Project Manager
- **Fond du Lac, Wisconsin** – Sidestream Deammonification Facilities, Project Manager and Lead Process Engineer
- **Madison Metropolitan Sewerage District, Wisconsin** – Our firm's Project Manager for multiple long-term plans, including the current 20-Year Facilities Planning Project, the 50-Year Master Plan, and the Net Zero Energy Master Plan
- **NEW Water, Green Bay, Wisconsin** – DPF Filter Backwash Study, Project Manager and Lead Technical Engineer

Industrial Wastewater Treatment experience includes anaerobic and aerobic biological treatment processes, pH control, equalization, flotation/clarification, chemical processes, residuals/solids stabilization and management, odor control, and permitting assistance. Industrial wastewater experience includes dairy and cheese processing, meat processing, vegetable processing, snack food production, bakeries, dessert and candy processing, pharmaceutical, and chemical production.

Water Treatment experience includes design of pumping facilities, granular media filtration units, chlorination, fluoridation, and sludge dewatering and handling facilities.

PRESENTATIONS

(Partial Listing)

- (2023, April 14) *An Operability Review of Low-Level Phosphorus Implementation Over 30 Years of Implementation* with Kelly Hajek and Mark Rudolph. Accepted for presentation at the Texas Water 2023 Annual Conference.
- (2022, Jun 6) *Biological Nutrient Removal (BNR) Design and Comparison – Case Studies.* Presented at the 2022 Iowa Water Environment Association Annual Conference.
- (2022, May 18) *Intensification Processes for Nutrient Removal Upgrades – Comparison at Midwest WWTPs*. Presented at the 2022 Central States Water Environment Association Annual Conference.
- (2022, April 6) *Sidestream Deammonification for Low-Energy Nitrogen Removal and Biological Phosphorus Removal (BPR) Enhancement* with Kelly Hajek. Presented at the Texas Water 2022 Annual Conference.
- (2022, April 6) *Intensification Processes for Nutrient Removal Upgrades – Doing More With What You Have* with Kelly Hajek. Presented at the Texas Water 2022 Annual Conference.
- (2020, November 19) *Waterloo Biosolids Upgrades: Eliminating Bottlenecks and Improving Operations and Reliability*. Presented at the 2020 Iowa Water Environment Association Annual Conference.

YEARS OF EXPERIENCE

31

YEARS WITH FIRM

31

EDUCATION

Ph.D. Civil/Environmental Engineering – Iowa State University, Ames, 1994

M.S. Civil/Environmental Engineering – Iowa State University, Ames, 1992

B.S. Civil/Environmental Engineering – University of Wisconsin–Platteville, 1990

REGISTRATION

Professional Engineer in Wisconsin, Ohio, Missouri, Iowa, Illinois, and Arizona

Institute for Sustainable Infrastructure Envision Sustainability Professional

AWARDS

2016 WEF Schroepfer Innovative Facility Design Medal for the Dubuque Water & Resource Recovery Center Upgrade

STRAND ASSOCIATES®

Randall A. Wirtz, Ph.D, P.E., ENV SP

Senior Associate/Director of Practice-Wastewater

- (2019, May 15) *Fond du Lac's Side Stream Deammonification Project: Design, Startup, and Lessons Learned.* Presented at the 2019 Central States Water Environment Association Annual Conference.
- (2018, June 7) *City of Waterloo, Iowa Wastewater Facilities Plan and Nutrient Reduction Study.* Presented at the 2018 Iowa Water Environment Association Annual Conference.
- (2018, May 15) *Nutrient Harvesting or Sequestration: The Best Fit for the Fond du Lac WTRRF*. Presented at the 2018 Central States Water Environment Association Annual Conference.
- (2017, June 8) *Cost-Effective Energy Recovery Via Renewable CNG Using Digester Gas RIN Trading*. Presented at the 2017 Iowa Water Environment Association Annual Conference.
- (2017, June 8) *Cost-Effective Energy Recovery Via Renewable CNG Using Digester Gas RIN Trading*. Presented at the 2017 Iowa Water Environment Association Annual Conference.
- (2016, May 17-20) *Addressing Nonpoint Nutrient Loadings through Nutrient Concentration Systems – The Next Generation of Manure Management in Dane County with Rachel Lee.* Presented at the 89th CSWEA Annual Conference.
- (2015, June) *Codigestion Evaluation and Implementation.* Presented at the 97th IAWEA Annual Conference.
- (2015, June) *Dubuque's Nutrient Reduction Strategy – Year 2 Update.* Presented at the 97th IAWEA Annual Conference.
- (2015, May) *Codigestion Evaluation and Implementation – Case Studies.* Presented at the 88th CSWEA Annual Conference.
- (2014, June) *Dubuque's Nutrient Reduction Strategy – Wastewater Treatment & Watershed Approaches.* Presented at the 96th IAWEA Annual Conference.
- (2014, May) *Estimating Codigestion/Cogeneration Capacity at Your WWTP*. Presented at the 87th CSWEA Annual Conference.
- (2014, May) *The First Step on the Roadmap to Net Zero Energy with Schroedel, et al.* Presented at the 87th CSWEA Annual Conference.
- (2013, June) *Dubuque's Anaerobic Digestion and Cogeneration Facilities.* Presented at the 95th IAWEA Annual Conference.
- (2013, June) *Moving Towards Net Zero Energy at WWTPs.* Presented at the 95th IAWEA Annual Conference.
- (2013, May) *Enhancing the Energy Cycle – Digestion, Codigestion, and Biogas.* Presented at the 86th CSWEA Annual Conference.
- (2012, June) *The Wisconsin/Illinois Phosphorus Experience – Regulations, Limits, Treatment, and Implementation.* Presented at the 94th IAWEA Annual Conference.
- (2012, May) *Plantwide Energy Reduction Evaluations at the Thorn Creek Basin Sanitary District.* Presented at the 85th CSWEA Annual Conference.
- (2010, June) *Will It be Under a Billion? The Capital and Long-Term Costs of Complying with Proposed Phosphorus Criteria.* Presented at the 92nd IAWEA Annual Conference.

COURSES

- (2002, 2001, 2000, and 1999) Modern Concepts in Anaerobic Digestion, *Contemporary Wastewater Treatment Plant Design and Operation*, UW-Madison Extension Course, Madison, Wisconsin.
- Wirtz, R., and Dague, R. R. (1997) Laboratory studies on enhancement of granulation in the anaerobic sequencing batch reactor (Vol 36., No 4.). *Water science & technology*. International Water Association.

PROFESSIONAL AFFILIATIONS

- Water Environmental Association of Texas
- Central States Water Environment Association
- Iowa Water Environment Association
- Water Environment Federation
- Wisconsin Wastewater Operators Association

Jack R. Karnes, E.I.T.

AREAS OF EXPERTISE

- Municipal Wastewater Treatment
- Construction Administration
- Financial Assistance

PROFESSIONAL EXPERIENCE

Municipal Wastewater Treatment experience includes:

- Served as Project Engineer in De Pere, Wisconsin for plant hydraulic analysis, process and instrumentation drawing (P&ID) development, and plan development and design of headworks improvements.
- Served as Project Engineer in Iowa City, Iowa for plant hydraulic analysis, P&ID development, and plan development and design of sludge conditioning improvements and hauled waste receiving.

Sanitary Sewer Collection System Assessment and Rehabilitation experience includes manhole assessment and rehabilitation. Served as Project Engineer in Fond du Lac, Wisconsin.

Wastewater Conveyance System Analysis experience includes inflow and infiltration (I/I) studies, capacity studies. Served as the Project Engineer for wastewater conveyance system analysis projects in Viroqua and Greenfield, Wisconsin.

Construction Administration experience includes construction administration services for projects in New Glarus and Delafield, Wisconsin; and Deerfield, Illinois.

Facilities Planning experience includes process evaluation, alternatives analysis, flow and loading projections, and fiscal impact analysis.

Financial Assistance experience includes state revolving fund programs in Wisconsin and Iowa.

Wastewater User Rate Development experience includes rate studies for Bristol and Marshfield, Wisconsin.

YEARS OF EXPERIENCE

3

YEARS WITH FIRM

3

EDUCATION

B.S. Civil Engineering – University of Wisconsin-Madison, 2022

REGISTRATION

Engineer-in-Training

Nicholas A. Bartolerio, P.E.

AREAS OF EXPERTISE

- Wastewater Treatment Plant (WWTP) Design
- Wastewater Treatment Process Modeling
- Biological Treatment Processes

PROFESSIONAL EXPERIENCE

Municipal Wastewater Treatment Process Planning and Design experience includes preliminary treatment, biological nutrient removal, tertiary treatment, and biosolids stabilization, and management facilities. Select projects:

- **Madison Metropolitan Sewerage District (MMSD) Liquid Processing Facilities Plan** – Lead hydraulic process engineer and modeler for 180 MGD WWTP facility plan.
- **Greater Peoria Sanitary District, Illinois Nitrification and Biosolids Dewatering Project Plan** – Lead liquid treatment process engineer for 154 MGD WWTP project plan.
- **Waterloo, Iowa Wastewater Facilities Plan** – Lead process engineer for 79 MGD WWTP facilities plan.
- **Beloit, Wisconsin Wastewater Facilities Plan** – Lead Process Engineer for 28 MGD WWTP facilities plan.
- **Bartlett, Illinois WWTP Improvements** – Lead designer for S2EBPR activated sludge improvements.
- **Moline, Illinois South Slope WWTF Project Plan and Design** – Lead Process Engineer for S2EBPR activated sludge and primary sludge fermentation system.
- **Huntington Sanitary Board, West Virginia WWTP Improvements** – Lead Biological Treatment Process Engineer.
- **Regional Water Resource Agency, Kentucky David Hawes Plant Design** – Lead Biological Treatment Process Engineer.
- **Delafield-Hartland WPCC, Wisconsin WWTP Improvements** – Lead Biological Treatment Process Engineer for S2EBPR activated sludge and primary sludge fermentation system.
- **Ames, Iowa Nutrient Reduction Improvements** – Lead Biological Treatment Process Engineer for low dissolved oxygen activated sludge system.
- **Fox Metro Water Reclamation District, Illinois Loading Capacity Study** – Lead Process Engineer.
- **Cedar Falls, Iowa, WWTP Facilities Plan** – Lead Process Engineer.

Wastewater Treatment Process Modeling experience includes the development and calibration of full treatment plant models incorporating wide variety of conventional and innovative treatment processes. Completed Advanced Training course held by Biowin developer Envirosim Associates, Ltd. Process modeling experience includes the following projects:

- Louisville MSD, Kentucky Hite Creek – WTC BNR Design
- Morgantown, West Virginia – Membrane Bioreactor Design
- Dubuque, Iowa – Nutrient Reduction Study
- Waterloo, Iowa – Nutrient Reduction Study
- Naperville, Illinois – BNR Modeling
- Greater Peoria Sanitary District, Illinois – Nitrification and Biosolids Dewatering Project Plan
- Bartlett, Illinois – Activated Sludge Design
- Minooka, Illinois – WWTP Facilities Plan
- Barrington, Illinois – WWTP Facilities Plan
- Ashland, Kentucky – WWTP Facilities Plan
- Joliet, Illinois – Westside WWTP Facilities Plan
- New Lenox, Illinois – WWTP Facilities Plan
- Thorn Creek Basin Sanitary District, Illinois WWTP – Phosphorus Planning Study
- Moline, Illinois – South Slope WWTF Project Plan
- Regional Water Resource Agency, Kentucky – Activated Sludge Design
- Huntington Sanitary Board, West Virginia – Activated sludge design
- Delafield-Hartland, Wisconsin – S2EBPR and primary sludge fermentation design
- Ames, IA – Nutrient Removal design

YEARS OF EXPERIENCE

13

YEARS WITH FIRM

13

EDUCATION

M.S. Environmental Engineering – University of Illinois at Urbana-Champaign, 2011

B.S. Civil/Environmental Engineering – University of Wisconsin-Madison, 2009

REGISTRATION

Professional Engineer in Wisconsin, Iowa, and Illinois

Nicholas A. Bartolerio, P.E.

PRESENTATIONS
(Partial Listing)

- *Village of Bartlett Wastewater Improvements Simplify Operations While Providing Biological Nutrient Removal Flexibility*, presented at the IWEA Nutrient Removal and Reuse Workshop, September 2024
- *Implementation of Primary Sludge and Biomass Fermentation for Improved Biological Phosphorus Removal at the Delafield-Hartland Wastewater Treatment Facility*, presented at the CSWEA 97th Annual Meeting, May 2024
- *City of Ames' Innovative BNR Conversion Plan for Nutrient Removal*, presented at the Iowa Water Environment Association Annual Conference, June 2023
- *Intensify! Membrane Bioreactors Expand Capacity*, presented at the 94th CSWEA Annual Meeting, May 2021
- *Simplification of Treatment Processes and Equipment Replacement Results in Energy Efficient Biological Nutrient Removal* at the Bensenville, IL WWTF, poster presented at the 2019 WEF Nutrient Symposium, July 2019
- *Evaluating Lagoon Upgrades for Increasingly Stringent Effluent Limits*, presented at the CSWEA 92nd Annual Meeting, May 2019
- *Low Level Phosphorus Pilot Studies at the Fond du Lac WTRRF*, presented at the IAWA Technical Committee Meeting, January 2019
- *City of Waterloo, Iowa Wastewater Facilities Plan and Nutrient Reduction Study*, presented at the Iowa Water Environment Association 97th Annual Conference, June 2018
- *Algae-Based Nutrient Removal Pilot Study Supplements Ongoing Nutrient Removal Evaluations at the City of Fond du Lac WPCP*, presented at the 2017 Illinois Wastewater Professionals Conference, April 2017
- *Deammonification for Cost Effective Nitrogen Removal*, presented at the 89th CSWEA Annual Meeting, May 2016
- *Navigating the Multitude of Nutrient Regulation Compliance Options*, presented at WATERCON 2016, March 2016
- *Push it to the Limit: Low Level Phosphorus Pilot Studies at the Fond du Lac WPCP*, presented at the Wisconsin Wastewater Operator's Association Annual Conference, October 2016

PROFESSIONAL AFFILIATIONS

- Central States Water Environment Association
- Water Environment Federation
- Illinois Water Environment Association
- Iowa Water Environment Association

Richard G. Thimm, P.E.

AREAS OF EXPERTISE

- Electrical Power Distribution
- Standby Emergency Power Systems
- Lighting
- Process Controls
- Lighting Controls
- Computer-Based Control Systems (SCADA)

PROFESSIONAL EXPERIENCE

Municipal Electrical System experience includes design of water, wastewater, and municipal building facility medium-voltage and low-voltage power distribution, process controls, Emergency and Standby Power Systems design, communication systems (ethernet, fiber-optic, radio), building lighting and general power, process instrumentation, PLC-based instrumentation and controls (SCADA), short circuit calculations, and voltage drop analysis.

Specific design projects include:

- City of Milwaukee Zeidler Building Second Floor Health Lab HVAC Upgrades, Milwaukee, Wisconsin
- Ashippun WWTF, Ashippun, Wisconsin
- Bargersville Utilities Wells 10, 11, 12, and Raw Water Main Generator and Well Field Modifications, Bargersville, Indiana
- Bartlett WWTP Influent Screening Project, Bartlett, Illinois
- Brazoria Elevated and Ground Storage Tank Rehabilitation, Brazoria, Texas
- Brenham Munz Lift Station, Brenham, Texas
- Brenham Ralston Creek Lift Station, Brenham, Texas
- Brookfield Sanitary District Water System Study Update, Town of Brookfield, Wisconsin
- Brooklyn WWTF, Brooklyn, Wisconsin
- Carrollton Utilities WTP Ion Exchange System Addition, Carrollton, Kentucky
- Cedar Rapids Water Pollution Control Facility MCC-2 Replacement, Cedar Rapids, Iowa
- Central Lake County JAWA Clearwell Underdrain Dewatering System, Lake Bluff, Illinois
- Central Lake County JAWA Fluoride Storage and Feed Room Upgrades, Lake Bluff, Illinois
- Cedar Rapids WWTP MCC-2 Replacement, Cedar Rapids, Iowa
- Clay Township Pump Station 8 Upgrades, Clay Township, Indiana
- Clay Township Lift Station No. 1 VFD Replacement, Clay Township, Indiana
- Clay Township Lift Station No. 2 Upgrades, Clay Township, Indiana
- Columbus WWTP, Columbus, Indiana
- Columbus City Utilities Wells 18 and 19, Columbus, Indiana
- Columbus City Utilities Wells 20-23, Columbus, Indiana
- Columbus City Utilities Deaver Road Booster Station, Columbus, Indiana
- Cudahy Water Utility WTP Sodium Hypochlorite Conversion, Cudahy, Wisconsin
- Dayton Tram Road Booster Pump Station, Dayton, Texas
- Decatur WTP Phase II Upgrades, Decatur, Illinois
- Delafield-Hartland WPCP Biological Phosphorus Removal, Delafield, Wisconsin
- Dubuque WPCP, Dubuque, Iowa
- Dubuque Bee Branch Stormwater Pumping Station, Dubuque, Iowa
- Catfish Creek Lift Station Standby Generator Addition, Dubuque, Iowa
- Fond du Lac Well 26, Fond du Lac, Wisconsin
- Fond du Lac Well 27, Fond du Lac, Wisconsin
- Fredonia WWTP UV Disinfection and Sludge Storage Tank No. 2 Addition, Fredonia, Wisconsin
- Fredonia WWTP Grit System Upgrades, Fredonia, Wisconsin
- Glenbard Wastewater Authority 2020 Electrical Service Distribution System Rehabilitation and Upgrades, Glen Ellyn, Illinois
- Grandview Lake WWTP, Grandview Lake, Indiana

YEARS OF EXPERIENCE

19

YEARS WITH FIRM

19

EDUCATION

B.S. Electrical Engineering – University of Wisconsin-Madison, 2006

REGISTRATION

Professional Engineer in Wisconsin and Texas

Richard G. Thimm, P.E.

- Grayslake Water System SCADA System Phase I Improvements, Grayslake, Illinois
- Grayslake Emergency Backup Well Facility, Grayslake, Illinois
- Grayslake Booster Pump Starter Upgrades Phase I and II, Grayslake, Illinois
- Grayslake Cornerstone Parkway Delivery Structure, Metering Station, and Elevated Tank, Grayslake, Illinois
- Jackson WWTP Odor Control System, Jackson, Wisconsin
- Kankakee River Metropolitan Agency WWTP – Phase IA Modifications, Kankakee, Illinois
- Kankakee River Metropolitan Agency WWTP – Phase IB Modifications, Kankakee, Illinois
- Kankakee River Metropolitan Agency WWTP – Phase IC Modifications, Kankakee, Illinois
- Kenosha WTP Membrane Replacement, Kenosha, Wisconsin
- Kettle Moraine Correctional Institution WWTP Secondary Clarifier Addition, Wisconsin Department of Administration, Plymouth, Wisconsin
- La Grange WWTP Upgrades, La Grange, Kentucky
- Lakewood East Sewer Ara Sanitary Pumping Station, Lakewood, Illinois
- Lake Forest WTP Intake Wetwell Algae Screen, Lake Forest, Illinois
- Lake Forest WTP Improvements, Lake Forest, Illinois
- Lake Forest Water Distribution System Monitoring Network, Lake Forest, Illinois
- Lancaster WWTP, Water and SCADA Lift Stations SCADA System, Lancaster, Wisconsin
- Lexington WWTP Electrical Improvements, Lexington, Kentucky
- Madison Metropolitan Sewerage District Pump Stations 6 and 8 Upgrades, Madison, Wisconsin
- Magnolia WWTP Expansion, Magnolia, Texas
- Manitowoc WWTF Improvements, Manitowoc, Wisconsin
- Mendota County Park Pumping Station, Westport, Wisconsin
- Menomonee Falls Water System Well No. 4 Filter Removal and Garage Upgrades, Menomonee Falls, Wisconsin
- Milford Water System SCADA Upgrades, Milford, Ohio
- Moline South Slope WWTP, Moline, Illinois
- Montello WTP Chemical Room Addition, Montello, Wisconsin
- Mount Horeb Water Pollution Control Facility, Mount Horeb, Wisconsin
- Naperville Improvements to Well No. 28 and Well No. 31, Naperville, Illinois
- New Glarus WWTP, New Glarus, Wisconsin
- Niles Water System Master Plan, Niles, Illinois
- North Shore Water Commission Water System Fluoride and Polymer Addition, Glendale, Wisconsin
- North Shore Water Commission Water System Electrical Upgrades, Glendale, Wisconsin
- Onalaska Main Street Stormwater Pump Station, Onalaska, Wisconsin
- Onalaska South Kinney Coulee Road Pumping Station, Onalaska, Wisconsin
- Water System Master Plan, Pewaukee, Wisconsin
- Port Washington Blower and UV Disinfection System Replacement Project, Port Washington, Wisconsin
- Prairie du Sac Well No. 4 Facility Improvements, Prairie du Sac, Wisconsin
- Riverside WTP Clarifier Replacements, Elgin, Illinois
- Salem 2015 WWTP Upgrades, Salem Lakes, Wisconsin
- Salem Sanitary Lift Stations 101, 102, 104, 207, and 211 Upgrades, Salem Lakes, Wisconsin
- Salem Sanitary Phase II Lift Station Rehabilitation and WWTP Improvements, Salem Lakes, Wisconsin
- Salem WWTP Regionalization Improvements, Salem Lakes, Wisconsin
- Salem Valmar and Yaws Lift Stations 226, 227, 228 and SLS201, 203, Salem Lakes, Wisconsin
- Sandwich UV System Addition, Sandwich, Illinois
- Sealy Sika Lift Station, Sealy, Texas
- Sheboygan WWTF Main Electrical Switchgear Replacement, Sheboygan, Wisconsin
- Snook WWTP, Snook Texas

Scott G. Herkert, P.E.
Senior Associate

AREAS OF EXPERTISE

- Evaluation and Remodeling of Existing Buildings
- Project Management on Various Building Projects
- Water Treatment/Wastewater Treatment Facilities
- Corrosion Control and Coatings Specialist
- Structural Design of New and Existing Industrial Facilities
- Construction Observation

PROFESSIONAL EXPERIENCE

Design experience includes a wide variety of structures, such as fire stations, concrete reservoirs, wastewater facilities more than 40 feet deep, multistory process buildings, administration buildings, police stations, recreational facilities, manufacturing facilities, and shore wall construction. Structural design experience includes municipal office buildings, school facilities, and a healthcare facility.

Industrial Manufacturing Facilities Design experience includes modifications and upgrades to existing facilities and design of new additions to facilities, including production, warehouse, and office spaces. Design of food manufacturing process areas meeting USDA requirements. Experience includes design and construction observation of several new 60,000-square-foot plus manufacturing facilities. Design of cooling tunnel building (50-feet-wide by 120-feet-long by 75-feet-tall) and two-story food grade powder production high-hygiene facility.

Project Management experience includes design and construction phases of several remodeling/new police departments, remodeling of safety buildings, new fire stations, remodeling historic city hall, city and new village hall with large meeting areas, public works facilities, park facilities, recreation facility, industrial manufacturing facilities, and many system replacements to municipal buildings.

Field Engineering and Observation experience includes a variety of services on wastewater treatment plants and pumping stations and building projects, including manufacturing facilities, fire stations, police departments, municipal office buildings, schools, and recreation facilities. Experience on above facilities includes shop drawing review; resident project representative services; on-site observations; and review of pay requests, change orders, and other construction-related documents.

Corrosion Control experience includes specifying and field investigations for high-performance coating systems for municipal and industrial applications, including water and wastewater treatment facilities, secondary containment areas, structures, floor coatings, and piping. Oversee company's coatings and corrosion control specifications and field observations for all offices.

Water Storage Facilities experience includes design and inspection services for dozens of water towers, reservoirs, and tanks throughout the Midwest, including:

- West Bend, Wisconsin
- Menomonee Falls, Wisconsin
- Dubuque, Iowa
- Cedar Rapids, Iowa
- Decatur, Illinois
- Rockford, Illinois
- Morgantown, West Virginia
- Fairmont, West Virginia
- Marietta, Ohio

Concrete and Masonry Remediation and Repairs experience includes all types of projects, including pump stations, wastewater tanks, tunnels, historic buildings, reservoirs, industrial facilities, and correctional facilities. This work has included full-depth repairs, partial-depth repairs, surface repairs, gunite spray applications, crack injection, mechanical joint sealants, structural member strengthening, and many other repair procedures in accordance with International Concrete Repair Institute (ICRI) or American Concrete Institute (ACI).

YEARS OF EXPERIENCE

34

YEARS WITH FIRM

34

EDUCATION

B.S. Civil/Structural Engineering – University of Wisconsin-Platteville, 1991

REGISTRATION

Professional Engineer in Wisconsin and Iowa

Adam D. Gander, P.E.

AREAS OF EXPERTISE

- Plumbing Design
- HVAC System Design
- Fire Protection
- Process Piping Design

PROFESSIONAL EXPERIENCE

Experience in the design of plumbing systems, fire protection systems, process piping systems, and HVAC systems for water and wastewater treatment facilities, educational facilities, commercial facilities, and industrial facilities.

Plumbing Systems experience includes design of various plumbing systems for commercial, industrial food processing, water treatment, and wastewater treatment facilities. System design has included plumbing for laboratories, including water purification and acid waste systems.

Fire Protection Systems experience includes design of fire protection systems for water and wastewater treatment facilities, and commercial facilities. Systems designs have included wet- and dry-type systems, as well as above- and below-grade diesel storage tanks.

Process Piping Systems experience includes design of process piping systems for water and wastewater treatment systems, including water reuse systems, above- and below-grade diesel fuel-supply systems.

Boiler and Systems experience includes design of boiler replacements and additions for wastewater treatment, and educational facilities.

Commercial and **Industrial Ventilation** experience includes design of make-up air systems, plant clean-up air systems, process air cooling systems, and engine room and boiler room ventilation systems. Design of HVAC systems and controls for commercial facilities.

Water and **Wastewater Treatment Plant (WWTP) Facilities HVAC** experience includes design of heating and ventilation systems for a variety of water and wastewater treatment facilities. System design includes high-hazard environment ventilation systems, testing, laboratories, and natural gas distribution systems.

LEED® Design experience includes the plumbing and HVAC systems of a LEED® version 3.0 certified facility. Design included development of an energy model, and experience in the online filing and formal registration required to obtain LEED® certification.

Select Projects

- Cedar Rapids WWTP – Cedar Rapids, Iowa
- Deerfield WRF – Deerfield, Illinois
- Mount Morris WWTP – Mount Morris, Illinois
- Moline WWTP – Moline, Illinois
- Fox River Water Reclamation District WRF – South Elgin, Illinois
- Waukesha WWTP – Waukesha, Wisconsin
- Pumping Station Nos. 6, 7, 8, 11, and 12 – Madison Metropolitan Sewerage District, Wisconsin
- Pumping Station No. 31 and Hickory Creek Pumping Station – Woodridge, Illinois
- Booster Pumping Station 106 – Fond du Lac, Wisconsin
- Well House No. 5 – Madison, Wisconsin
- Water Treatment Plant HVAC Improvements – Cedar Rapids, Iowa

YEARS OF EXPERIENCE

17

YEARS WITH FIRM

17

EDUCATION

B.S. Mechanical Engineering – University of Wisconsin-Madison, 2007

REGISTRATION

Professional Engineer in Wisconsin, Arizona, and Iowa